When forming a "Web community," look before you leap. Managing, page 64

Check out "The Buzz," our analysis of recent key events in electronic commerce.
www.computerworld.com/emmerce.

# COMPUTERWORLD

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August 11, 1997 · Vol. 31 · No 32 · 118 pages · $3/Copy $48/Year

## Strike chokes delivery systems

By Thomas Hoffman

THE STRIKE AGAINST United Parcel Service of America, Inc. should be a dream come true for competitors such as Emery Worldwide and Federal Express Corp.

Instead, it's creating nightmares for industry players, which are being forced to turn

UPS competitors can't absorb all its business

away customers because their package-processing systems are stretched beyond their limits.

"When your maximum capacity is 4 million packages a day [at FedEx], do you really want to pick up another 12 million packages a day [UPS's normal daily volume]?" said Craig Kloner, an analyst at Goldman,

*Strike, page 102*

NASD's Sam Lautghery: "It made sense to bring the boxes back in to the data center"

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### R/3 MEETS THE 3 R's
SAP offers its software to graduate school students. Page 2

### BOB BEMER: YEAR 2K DREAMER
Cobol pioneer pitches controversial code fix. Page 4

### Digital certification
Vendors team up to improve Internet authentication. Page 12

### JAVA BACKERS GET A JOLT
Microsoft/Apple deal worries cross-platform proponents. Page 14

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## Guam tragedy spurs Web aid

By Patrick Thibodeau

IT'S GREGORY OKADA'S job to make sure information flows through the government of Guam's computer networks. But shortly after last week's crash of Korean Air Lines Flight 801, Okada gave himself a new job: making information about the disaster available to the world.

Okada, the technical support administrator and webmaster of the Guam government's information systems department, learned of the crash shortly after he awoke. He immediately had an idea about how he could help.

He called his friend Rudolph Villaverde, who works at the University of Guam computer *continued*

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## Users force fat browsers back to basics

By Carol Sliwa

THIS MAY BE FINE in but fat is where it's at as far as the major Internet clients are concerned.

A standard installation of the beta version of Microsoft Corp.'s Internet Explorer 4.0 browser typically takes up 53M bytes of disk space. By contrast, Windows 95's typical installation is 40M bytes.

The situation is a little better at rival Netscape Communications Corp., whose officials have been saying for months that it is

*Loaded browsers, page 102*

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Is Apple's decision to sell 5% of the company to Microsoft a good idea?

78%

Don't know 11%

No 19%

Base: 104 Impasses from Apple users
Source: Computerworld Information Management Group, Marketion Survey, August 1997

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# HOMECOMING

▶ Distributed servers return to the data center as IS seeks to centralize control and security

By Tim Ouellette

THE NATIONAL ASSOCIATION of Securities Dealers is gradually small trade that could have a big impact.

The parent organization of the Nasdaq Stock Market plans to move its distributed servers from its 14 district offices back to in Rockville, Md., data center — to be centrally managed by the information systems staff.

NASD's server relocation is part of a larger exodus around the country. Like prodigal children returning to the fold, distributed servers — from high-

**DATA CENTER OPERATIONS**

end Unix boxes to newer Windows NT machines — are finding their way back to the IS department's data center.

In fact, one survey found that 88% of data centers expect to welcome back distributed servers this year *(see chart, page 24)*.

"The data center historically was synonymous with the mainframe," said Howard Richmond, vice president and research director at Gartner Group, Inc. in Stamford, Conn. "Now, though, it is morphing into an inclusive operations center and is becoming the technology infrastructure for the company."

*Servers, page 24*

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By Kim Girard/BOSTON **Not every Macintosh die-hard is crying foul** over Microsoft Corp.'s $150 million investment in Apple Computer, Inc. Many corporate users were quick to see a silver lining in the surprise deal with Apple's longtime nemesis — protection for their investment.

*See Apple package, page 6*

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Things Not Meshing?
Call a Company...

GATEWAY2000

# RISC users a hard sell for Wintel vendors

**By April Jacobs**

DESPITE INTEL'S continuing push into the upper reaches of the computer hardware market, users say they aren't ready to give up their RISC systems yet, citing costly software conversions and loyalty.

So while vendors such as Dell, Compaq, Hewlett-Packard and others prepare high-end PCs and workstations based on Intel Corp.'s Pentium II and its new chip set, many of those machines will be sold to new users, not converts, according to analysts, users and even the vendors.

"We have a huge investment in RISC-based systems, and we've just standardized our production systems on them, [so] I'm not ready to go through another mass conversion," said Nancy Parker, senior vice president of information technology at the Federal Home Loan Bank of Dallas in Irving, Texas.

And despite vendor hype, Parker is like many of the users Wintel vendors are trying to woo.

**THE FIRST WAVE**

"We're seeing the initial movement [of users toward Pentium-based systems] tday, and that will pick up in pace over the next few years," he said.

Gwennap said Pentium II machines running Windows NT are already beginning to challenge RISC machines in some areas, such as financial, circuit design and software development applications.

The Intel-based machines are due out from the above-named vendors by the end of August, sources say. At $5,000 to $15,000 per machine, the Intel boxes are expected to cost a fraction of what their RISC-based competitors cost, which is typically $20,000 to $50,000.

Sources said the new chip set will be called the 440LX and will feature accelerated graphics capabilities.

**PROFIT FACTOR**

But analysts said desktop vendors such as Compaq Computer Corp. in Houston; Dell Computer Corp. in Round Rock, Texas; and Hewlett-Packard Co. in Palo Alto, Calif., plan to release new Intel-based PC workstations because they want the higher profit margins associated with them.

Moreover, many early Pentium II adopters are either running software that requires lots of number crunching — financial companies such as Prudential Insurance Co., Merrill Lynch & Co. and Coopers & Lybrand LLP — or high-end graphics software, as does NASA.

"It's going to take a long time to convert a Unix nerd to an NT nerd, because they have so much legacy software already written, and there is no good converter," said J. Briscoe Stephens, advanced scientific systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala.

Also at issue is whether Pentium II and NT combined can deliver as much in terms of performance as a Unix-based RISC system.

"In our actuarial department, where number crunching is key, users will remain on RISC desktops for some time because they need the power," said a systems manager at a large Midwest insurance company. Plus, he said, "we're still in the middle of the road in our views on whether NT and Intel can match that performance."

"Clearly, if you have a RISC and Unix-based environment, it's harder to convert. But new users don't have this legacy software issue. People have been doing technical applications on PCs for a long time because they haven't been able to afford workstations," Gwennap said. □

**Company just standardized production systems on RISC, so a conversion is out of the question for now**

IS managers are desperate for Oracle talent. Unfortunately, the new hires can move on fast. IT Careers, page 82

Networks need constant roadwork, warns Ross Store's John Piening. The Enterprise Network, page 49

Product review: 10 digital cameras for your intranet, each less than $1,000. Buyer's Guide, page 72

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# RISC users a hard sell for Wintel vendors

By April Jacobs

DESPITE INTEL'S continuing push into the upper reaches of the computer hardware market, users say they aren't ready to give up their RISC systems yet, citing costly software conversions and, at least in some cases, superior performance.

So while vendors such as Dell, Compaq, Hewlett-Packard and others prepare high-end PCs and workstations based on Intel Corp.'s Pentium II and its new chip set, many of those machines will be sold to new users, not converts to, according to analysts, users and even the vendors.

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And despite vendor hype, Parker is like many of the users Wintel vendors are trying to woo.

"Clearly, this is going to be a long-term transition," said Linley Gwennap, an analyst at Microdesign Resources, Inc. in Sunnyvale, Calif.

## THE FIRST WAVE

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## PROFIT FACTOR

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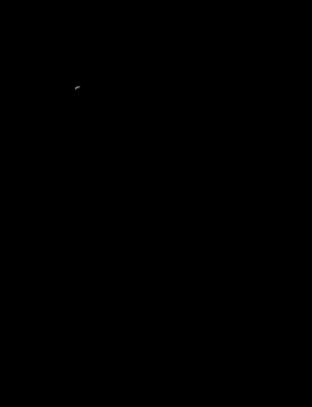"It's going to take a long time to convert a Unix nerd to an NT nerd, because they have so much legacy software already written, and there is no good converter," said J. Briscoe Stephens, advanced scientific systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala.

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Company just standardized production systems on RISC, so conversion is out of the question for now

*Federal Home's Nancy Parker*

## U P · F R O N T

# Cybercash

**M**icrosoft's investment in Apple last week provided some fireworks, but the more important big-picture story is Microsoft's longer-term campaign to dominate the computing world.

To do that, Microsoft is leveraging the one resource none of its competitors can match: cash. Since Microsoft's profit embrace of the Internet in December 1995, the company has purchased its Internet and electronic-commerce technology firms and taken equity stakes, or five others (www.microsoft.com/msft.html/acquire.htm). The deals encompass everything from Web server management to streaming video to cable billing. Yet despite spending nearly $2 billion in the process, Microsoft is still carrying an unbelievable $9 billion in cash on its balance sheet. This company literally cannot spend money fast enough.

In fact, the interest alone on that cash hoard would let Microsoft make a deal the size of the WebTV buyout and Apple investment each year. It's hard to imagine how anyone else can compete with that.

**Microsoft cannot spend money fast enough.**

The Apple deal was a master stroke, a monument to Bill Gates' business brilliance. With it, Microsoft propped up what remained of the real cross-platform browser alternative (see story, page 14). It's a no-lose deal for Microsoft.

Now, leveraging its portfolio of Internet technologies, Microsoft will begin to roll out suites that encompass server utilities, development tools and information delivery products — all optimized for use on NT Server. The message to IS managers will be compelling: Microsoft is the safe choice on the Internet.

Whether this trend is unbeatable is good for users is a topic for a future column. In the meantime, I have to stand in awe of the power of this strategy — and of the bankbook driving it.

Paul Gillin, Editor
Internet: paul_gillin@cw.com

## T H E · F I F T H · W A V E

### BY RICH TENNANT



"HEY! IT LOOKS LIKE SOMEONE FOUND THE LICKS ROAR ON THE SOUND CONTROL PANEL."

E-mail Rich Tennant at theptwww@aol.net

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# SAP AG enters college

*By Julia King*

SEVERAL TOP business schools are integrating SAP AG's R/3 software into their graduate curricula to give future managers a better idea of how technology-enabled companies operate in the real world.

And their future employers couldn't be happier.

"There is a big gap in supply and demand right now for people who have backgrounds with integrated software," said John Bartley, an information systems director at Eli Lilly & Co. in Indianapolis.

"We don't necessarily want or need people who only understand R/3, but it will be a huge benefit to graduate with an understanding of how these enterprise systems work and why they are important in the workplace," Bartley said.

**FIRST IN LINE**

SAP is the first enterprise software vendor to secure a slot on the academic rosters of graduate schools.

So far, SAP has signed up five partners in an university alliance program, which provides schools with free R/3 software, faculty training and limited technical support. In exchange, the schools agree to use the soft-

ware as a primary teaching tool in their programs.

Other schools in the program are Central Michigan University in Mount Pleasant, Mich.; Purdue University in West Lafayette, Ind.; and California State University at Chico.

The schools get R/3 systems that contain customized databases of a fictitious company that manufactures and sells motorcycles.

"This semester, we'll use R/3 in systems analysis and design classes so students can see the entire custom ordering process through the motorcycle company," said Deb Ghosh, director of the University of Louisiana's MBA program in Baton Rouge.

Eventually, R/3 and the fictitious motorcycle company will be woven into courses in accounting, marketing, human resources and finance, Ghosh said.

But already, recruiters are hot on the trail of students who will start using the SAP software when classes begin next month.

"After news broke that we're getting SAP, there are companies coming down this fall that have never come down here before," Ghosh said.

At the University of California at Irvine, "The phones in our placement center started ringing practically overnight when industries heard we were using R/3 in the classroom," said Randy Williams, head of the school's career services center.



**Students this semester will use R/3 in systems analysis and design classes**

The technology-intensive curriculum aims to mirror the environment graduates will encounter in the business world.

"If you think about accounting, a lot of accounting courses are still taught as though there's an accountant still sitting at a desk making entries," said IS professor Vijay Gurbaxani.

"But with R/3, you have fulfillment of an order creating all the appropriate accounting entries automatically," he said. □

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# Cheap Gigabit Ethernet cards may boost deployment plans

*By Bob Wallace*

NETWORK MANAGERS can expect to see the price of Gigabit Ethernet adapter cards fall dramatically this year, which may boost deployment of the technology in corporate networks.

The expected price cuts are the result of chip makers developing new low-cost chips for the adapter cards. Start-up Jato Technologies, Inc., for example, said the price of cards using its chips could plummet from roughly $2,000 to as little as $400 per card — an 80% price cut.

VLSI Technologies, Inc. in San Jose, Calif., will announce low-cost Gigabit Ethernet chips in a few weeks.

Gigabit Ethernet switches typically reside in large data centers and can provide multiple 1G bit/sec. pipes to servers

equipped with Gigabit Ethernet adapter cards. Cards also can be used in high-end workstations.

**GOOD VIBRATIONS**

One user considering Gigabit Ethernet products was generally upbeat about the prospect of falling prices.

"Developments like this will make it easier to deploy Gigabit

Ethernet technology because when you make something cheaper and better, users will come knocking at your door," said Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass.

"This makes the cards affordable for some workstations and servers, but [the price is] still high for a large deployment," he said.

As users deploy 10M bit/sec. switching toward the desktop, they need high-bandwidth backbone technologies such as Gigabit Ethernet to handle the fast-growing streams of data. □

# NYC sued over parking law tool

By Kim S. Nash

THE CITY OF New York has been charged with stealing proprietary technology for its award-winning parking-violation management software.

T-Ware Technology, Inc., a small vendor in Fort Lee, N.J., claims the city lifted parts of its Scoff-Check System, including its look and several functions, after seeing it demonstrated during a sales pitch last year.

The city didn't buy Scoff-Check and Tow It, deciding instead to build its own similar software, dubbed Tow It. Both Scoff-Check and Tow It load smart cards with data on repeat illegal parkers for easier ticketing and towing by city workers.

"We devised that solution,

and they appropriated it," said Tom Salamone, president of T-Ware, in an interview last week.

Salamone declined to comment on how much the soured deal with New York affected T-Ware's viability as a company. But T-Ware continues to sell its package, he said.

City officials couldn't be reached to comment, but New York was slated to respond to the suit in the next couple of weeks.

Some high stakes are involved. New York credits Tow It, which won a Computerworld Smithsonian Award in June, with milking an extra $2.7 million in parking and towing fees from city drivers last year. New York charges $250 per tow, plus $15 per day for storage.

> "We devised that solution and they appropriated it."
> — Tom Salamone, T-Ware

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# Java tools promise close-up view

By Sharon Gaudin

SUN MICROSYSTEMS, INC. wants to extend its well-known slogan to "write once, test anywhere."

Sun will announce a spin-off called SunTest this week to build and market its new suite of Java testing tools. The tools, which are 100% Pure Java themselves, were designed to test Java applications as well as the virtual machines.

## CONSISTENCY

The goal is to help developers ensure that their applications run the same way on every platform. Problems achieving that kind of true platform-independence have plagued the Java programming language.

"None of the other testing

tools has a good Java story," said Michael Pitoniak, principal software engineer at 3Com Corp. in Boxboro, Mass. "With Java-Beans, for instance, [and] with the other testing tools, I cannot see inside them when the test is running. With [SunTest's] tool, I can see right into the methods and properties. That's so unbelievably awesome for a testing engineer."

Sun's suite of testing tools, available now, includes the following:

- JavaStar, which tests completed applications from the Virtual Machine through the operating system and application. It costs $1,995 per seat.

- JavaScope, which makes sure the developer's testing scripts touch on every line of code. It costs $1,495 per seat.

- JavaSpec, which tests each application programming interface as it is created. It costs $495 per seat.

Pitoniak, who has been beta testing JavaStar since last year, said being able to ensure that an application runs on every platform the same way is a big advantage to him.

"I write Java, and I really only focus on Windows. I test my applications on the Windows platform," Pitoniak said. "The Unix team here can take my application and use the same test I've used for their Unix machines. It's spectacular. That cuts down on testing time significantly." □

> ■ Microsoft pitches HTML as
> ■ Java alternative, David
> Coursey writes. Page 103

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# EDS seen as winner in $4B outsourcing contract

► BellSouth narrows contenders for support pact

By Thomas Hoffman

ELECTRONIC DATA SYSTEMS CORP. is expected to win a newly minted megaoutsourcing contract to run BellSouth Corp.'s mainframe and midrange operations. Analysts pegged the deal at $4 billion.

The multiyear contract is the first $1 billion-plus contract for Plano, Texas, services giant since it won a 10-year, $1 billion

pact to run Rolls-Royce PLC's information systems operations in December 1995.

EDS will be the prime contractor for the BellSouth mainframe/midrange contract and is expected to snare the lion's share of the contract revenue.

Analysts predicted more big EDS contracts are in the works. Moshe Katri, an analyst at UBS Securities, in New York, said EDS is the front-runner to win a

mammoth outsourcing contract with Commonwealth Bank of Australia, which could be worth as much as $6 billion.

A decision on the deal down under, which may have a rival bid from Computer Sciences Corp., could be reached as early as this week, Katri said.

A BellSouth spokeswoman confirmed that the Atlanta-based telecommunications company has narrowed its negotiations to a single team, which

includes EDS and Chicago-based Andersen Consulting. She said BellSouth intends to have a contract in place by December.

In April, BellSouth selected EDS and Andersen to take on software development. That deal, in which Andersen will be the prime contractor, is expected to be signed by October.

Following profit declines in April — due in part from dis-

tractions from its spin-off last year from General Motors Corp.

— EDS announced a restructuring effort aimed at cutting as many as 9,000 of its 98,000 jobs. EDS has since won an eight-year, $500 million customer-service contract from Digital Equipment Corp. in Maynard, Mass., in June and a $500 million-plus contract from a group of U.K. banks.

Last week, EDS reported lower-than-expected profits for its second quarter as it struggled to cut costs, leading the company to lower its full-year profit estimates from $2.50 to $2.25 per share to $1.90 to $2 per share. □

> **RESTRUCTURING MOVES**

# Hackers exploit E-mail hole

By Sharon Machlis

HACKERS MAY HAVE compromised thousands of computer systems across the Internet by exploiting a known security hole in some Internet messaging software.

It is unclear how many machines were actually breached in the attack. But among the thousands of hosts probed by hackers for the flaw, about 40% turned up vulnerable, according to incident logs reviewed by the Computer Emergency Response Team (CERT) at Carnegie Mellon University in Pittsburgh.

The latest attacks show the urgency of following up on reports of software bugs and promptly

**For more information on IMAP and POP security holes, point your browser at these URLs:**

- Initial CERT advisory on IMAP vulnerability:
  ftp://info.cert.org/pub/cert_advisories/CA-97.09.
  imap_pop

- Tips on checking if your system has been compromised:
  ftp://info.cert.org/pub/tech_tips/intruder_
  detection_checklist

plugging publicized holes, security experts said.

The hole is potentially dangerous because it allows an intruder to obtain "root" access on a machine. That gives users a wide range of privileges, including executing binary code on a system. It affects some versions of the Internet Message Access Protocol (IMAP) and Post Office Protocol (POP).

Intruders can exploit the hole by sending a specific type of text message to a system that runs vulnerable IMAP and POP software, including the University of Washington's IMAP implementation. That can cause a buffer overflow and allow high-level access to a system.

IMAP offers message-processing access to multiple mailboxes across a network, either online in real time or offline. POP allows for mail to be sent regularly to systems not permanently connected to a network.

The bug in some implementations of IMAP and POP was first reported in April, along with software fixes for some of the affected versions. The initial CERT warning described how to fix the problem — install a patch, upgrade to new software or turn off the IMAP and POP services if they aren't needed.

But many administrators apparently failed to patch the hole. "Some sites have reported they've been compromised," said Shawn Hernan, a technical staff member at CERT.

In one case, intruders installed Trojan Horse "identd" server software that looks like a conventional Unix identd user identification system but allows easy future access to obtain root privileges.

Some systems were broken in to weeks ago, but administrators didn't know until they checked their machines after CERT issued a special report last week, Hernan said.

## Pain of publicity

It is unclear why hacker attention has again turned to the IMAP/POP vulnerability.

Some observers speculate it is because the subject was raised recently on an Internet bug-tracking mailing list.

"There are good and bad points" to electronic-mail lists and newsgroups that publicly disseminate data on security flaws, said Dave Curry, a senior Internet security analyst at the IBM Emergency Response Service. "They not only help the good guys, they also help the bad guys."

Most people agree bug reports are necessary in an age when hackers prowl World Wide Web sites with the latest vulnerabilities, Curry said.

"Even though it's scary [with] hackers having that knowledge, I want to have that knowledge also," said one systems administrator. "The bad guys are going to find it out anyway."

— Sharon Machlis

"We put these bulletins out for a reason," said William Orvis, a member of the Computer Incident Advisory Capability team at the University of California Lawrence Livermore National Laboratory in Livermore, Calif. "If they don't patch their systems, it's too bad."  □

# Cobol pioneer pitches year 2000 fix

By Tim Ouellette and Robert L. Scheier

BOB BEMER has been around computers since the birth of the industry, and now he thinks he has a way to make sure the year 2000 isn't the end for many systems.

The industry veteran has come up with a plan to attack the date problem in the depths of the system — the machine code of ones and zeros. He claims this would be cleaner than some current methods and up to 10 times faster, too.

But his product isn't shipping yet, and he has to move quickly to reach users before they turn to other year 2000 solutions. Furthermore, some observers are skeptical about the product.

Bemer, 77, had a hand in the creation of Cobol and the adoption of the ASCII fastening standard. After a career at IBM, Univac, Rand Corp. and General Electric Co., Bemer founded BMR Software, Inc. in Dallas to market his new product — Vertex 2000.

"With the problem focused on Cobol, I felt a personal responsibility for the whole thing," Bemer said.

Vertex 2000 examines a mainframe program's object code — which is structured machine code — finds every possible date instance during an offline scan and patches the code to run a separate subroutine for handling the date. Then when the program runs, the subroutine uses extra bits in a date field, which Bemer calls "Big-its," to indicate the century.

Other automated tools on the market take a similar approach at the higher-level source code, which requires more time and manual intervention to get the job done, Bemer said.

The problem, Bemer said, is "who's going to look at [the source code]? Not the guy who wrote it because he is most likely gone."

He also said the method eliminates the need for testing, which can take up to 50% of a year 2000 project's time and effort. On the other hand, he admitted that his program will take a performance hit when the user runs applications because it is correcting data instances online.

"Our program will run slower to begin with but swap itself up after it weeds itself of all the things that weren't year operations," he said.

Some observers and year 2000 practitioners said that even if Bemer's approach works, it tackles only code conversion, which is the easiest and cheapest part of a year 2000 fix.

"It's only addressing 20% of the cost of the problem," said University of North Texas professor Leon A. Kappelman, co-chairman of the Society for Information Management's year 2000 working group. "That's not trivial, but it's not a silver bullet in the sense you wave your magic wand and everything is fixed."

Assessment, project management and testing make up the bulk of year 2000 efforts. So just understanding how to fix code at the object level, he added, "doesn't necessarily mean you understand the complexity of enterprise systems and understand the requirements of testing."

A number of posters on the year 2000 Internet discussion groups have debated Bemer's plan. Many voiced concern over altering low-level object code and wondered whether he actually had enough time to turn his idea into a workable product for widespread use.

BMR Software won't have Vertex 2000 ready to attack actual customer code for another two months.  □

# Mostly thumbs-up for Microsoft deal

In an era when many companies are considering standardizing on one platform — a move often detrimental to Apple — many corporate Macintosh users are hopeful that plans to exchange technology between Apple and Microsoft will make it easier to retain a foothold in an otherwise overwhelmingly Wintel landscape.

"I hate Microsoft software,

> "I hate Microsoft soft-
> ware, but if it's the larg-
> est seller, you need to
> embrace it."
> — Julius Wilpon,
> Simon & Schuster

but if it's the largest seller, you need to embrace it," said Julius Wilpon, publishing technology specialist at Simon & Schuster in New York.

An exclusive *Computerworld* survey of 104 corporate information systems Macintosh users (see charts) and interviews with attendees at last week's Macworld Expo/Boston indicate support for the alliance, under which Microsoft has promised to ship Macintosh versions of key business applications alongside Windows versions. For its part, Apple will bundle Microsoft's Internet Explorer with the Mac OS.

Users characterized the deal as a second chance and an opportunity for the Macintosh.

"It's a stab at survival," said Nellie Freeman, MIS director at Fenwick & West LLP. "Getting a key player like Microsoft to buy into their survival will give Apple breathing room to regroup."
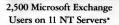
"This improves Apple's viability, but it's going to make [the Macintosh] a Microsoft machine," said Doug Biddle, senior project engineer at TRW, Inc. in Cleveland. "It's sad. I think it's better than seeing Apple fold up and steal away."

As announced by Apple's Steve Jobs to a chorus of boos at Macworld, Microsoft will invest $150 million in Apple and make a commitment to develop and ship future versions of the best-selling Microsoft Office suite of products for the next five years — the best part of the deal for users, according to one analyst.

"Before, it was really unclear whether Microsoft would continue to support [Office for the Macintosh]," said Tim Bajarin, president of Creative Strategies, Inc., a consultancy in San Jose, Calif.

"We're very big on platform compatibility," said Myron Krawczuk, a senior support analyst at Bristol Myers-Squibb Co. in Princeton, N.J. Still, he questioned whether Microsoft will keep its promise to deliver comparable software for the Macintosh, citing Microsoft's troubled history in that area.

In recent months, some users have expressed uncertainty over whether companies will continue to support the Macintosh given the ongoing turmoil at Cupertino, Calif.-based Apple, including the ouster of CEO Gilbert Amelio, dwindling profits and computer availability problems.

Large corporations such as Lockheed Martin Corp. have suffered ongoing internal disputes over whether to dump the Macintosh. According to the *Computerworld* survey, 45% of the respondents said they were under pressure to abandon the Macintosh platform.

"[The Microsoft deal] will reassure a lot of people, including

the financial people who had been hedging on our Mac investment." said Corcoran Leary, vice president of IS at Hal Riney and Partners in San Francisco, an advertising firm with 200 Macintoshes.

Brent McWatters, core products manager at NASA's Jet Propulsion Laboratory in Pasadena, Calif., which uses 4,000 to 5,000 Macintosh computers, said he hopes Apple will embed

Microsoft's foundation classes for Java in its virtual machine. That would let him use Microsoft's Java technology for both Windows and Macintosh. Apple now uses Sun Microsystems, Inc.'s Java Foundation Classes, which are the industry standard.

"With this agreement, it looks like we could have a fantastic intranet solution that will work for PCs and the Mac," McWatters said.

The deal will also have a longer-term impact on the industry. The agreement means an end to bickering over system copyrights and cross-licensing that could give Microsoft better access to the Macintosh graphical user interface.

"This means in the long term that the underlying Mac operating system will become much more like Windows," said James Staten, an analyst at Dataquest in San Jose. He said he wouldn't be surprised to someday find Windows NT running the Macintosh platform. ☐

*Staff writer Matt Hamblen contributed to this report.*

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# Users to Apple: Send in the clones

## ● Mac cloning creates competition, choice

By Kim Girard
BOSTON

APPLE COMPUTER, INC. is shooting itself in the foot by putting its licensing agreements with clone makers in limbo, Macintosh users said.

At stake are agreements that let clone manufacturers produce Mac OS machines — licenses Apple is reconsidering. Clone makers are bickering with the mothership over triple licensing fees that Apple wants to tack onto high-end clones, including those that use Rhapsody — Apple's next-generation operating system — and other systems, analysts said.

"It would be a disaster if they didn't allow the clone companies to keep growing," said Jennifer Meyer, a production design coordinator at Houghton Mifflin Co. in Boston. "They've brought a whole lot of competition to the market. [Clone makers] added faster processors last year and better features."

Meyers said her computer is considering replacing some Apple machines with clones.

Those sentiments have the financially troubled Apple wary of losing profits to clones. Power Computing Corp. and Motorola, Inc. have kept Apple to market with upgraded products over the past year and are stealing Apple's market share.

"Any new licensing agreements must expand the Apple platform, not merely redistribute existing market share," said Fred Anderson, Apple's chief financial officer, during a press conference at last week's Macworld Expo/Boston.

Apple's stance drew picketers



Power Computing protesters picket Macworld Expo/Boston

from Power Computing, who doled out signs in front of Macworld venues that read, "We demand choice." A group of Macintosh users toted the signs into Apple co-founder Steve Jobs' keynote speech Wednesday.

Picketer Paul Constantine, director of electronic publishing

at McGraw-Hill, Inc. in New York, said he was disappointed that Jobs avoided the cloning issue. "That is a critical issue in Apple's survivability. We all know what happened in the PC market [with IBM]. Nobody at Apple has read their history books. A Compaq computer is not called a clone or an IBM-compatible anymore."

Rumors that Apple may not liquidate future operating systems drew fire from Power Computing President and CEO Joel Kocher, who said an open platform creates competition.

"This is two times faster than [a Windows-based Intel-chipped laptop], and we can't ship it." Kocher said, holding up a laptop computer made by his company. Apple has prevented clone makers from shipping laptops.

Christopher Matragno, a computer services manager at Kinko's, Inc. in Nashua, N.H., said, "I buy Power Computing [machines] because I can afford it. I can't afford the Apple." ☐

> **For more survey results,**
> go to our Web page at
> www.computerworld.com

# Users: Think before you tinker

▶ Distributed networks require a central plan

By Patrick Dryden

IMPLEMENTING one of the hot new frameworks for managing distributed networks requires years of advance planning, according to users involved in those projects.

The goal is to obtain a global view of essential business functions to streamline management, reduce costs and take charge of service levels for end users.

The leading vendors are extending the reach of their products to individual desktops in new ways (see story at right).

But before rolling out the products, information systems departments need to have a solid strategy in place to balance support responsibility between central and remote staff.

"You must start with the process or else you're wasting money on tools," said Alex Beylin, a systems manager at Chrysler Corp. in Highland Park, Mich.

In other words, "integrate the various functions to succeed," said Chip Gliedman, an analyst at Giga Information Group in Cambridge, Mass.

That advice applies whether IS chooses Unicenter TNG from Computer Associates International, Inc., OpenView from Hewlett-Packard Co. or Tivoli TME 10 from Tivoli Systems, Inc. as their tool to open the enterprise.

"We started to gain our hands around the organization two years before choosing Unicenter TNG," said Robert Tucker, chief technology officer at DST Technologies, Inc. in Kansas City, Mo. The mutual funds firm expects to save $500 annually per PC by giving central IS and regional staff worldwide the same tool suite and information repository. Then an operator at headquarters or in London could check a PC's configuration and upgrade its applications without a costly visit, Tucker said.

At Chrysler, reducing labor



Needs to manage 12,000 locations without IT people

"We're trying to minimize the projected staffing for remote support"

support was the strategy four years before the automaker began implementing TME 10 in 1995.

"TME 10 lets us centralize more than ever," Beylin said. For example, linking TME 10 to Chrysler's human resources database will let central administrators add and change users more quickly than possible now by local administrators, he said.

For Allstate Insurance Co., Unicenter TNG is part of a long-term strategy to reduce operating costs.

"Frankly, it's the most cost-effective way to manage 12,000 locations without IT people," said Donny Lippard, assistant vice president for field support at Allstate in Northbrook, Ill.

For global insurer American International Underwriters,

Unicenter TNG has helped minimize projected staffing needs at existing support sites.

"We still need local support users who know the language and the users, but our goal is to control growth there," said Mike Alsten, network services manager at the Livingston, N.J., insurer. "We're more efficient now, using the same tools instead of talking on the phone."

Some IS managers expect enterprisewide management capability to break down barriers be-

tween support groups.

Both central and local support staff will continue much as they have for the past four years at Charles Schwab & Co. But by integrating TME 10 and workgroup tools, their efforts will be "more cohesive," said Richard Weist, enterprise management architect at Charles Schwab in San Francisco. ◻

☐ Users upgrade networks to cure ailing projects and start new ones. Page 49

## Top-to-bottom management

IS managers want to watch how the client/server-based business runs, right down to each desktop. To provide that view from their enterprise-level management platforms, the three leading vendors are trying to integrate workgroup tools used to maintain LAN servers and PCs.

They have announced the following:

▶ Tivoli Systems in Austin, Texas, last week introduced the LAN Access option for its TME 10 enterprise manager. With LAN Access, an operator can share information and console functions with workgroup tools from the TME 10 console. It costs $4,500 per LAN Access Server and $175 per managed node.

▶ Similar LAN tool support is free from Computer Associates for its Unicenter TNG suite. It currently can exchange event information through its interface with four workgroup products — Compaq Computer Corp.'s Insight Manager, Intel Corp.'s LANDesk, Microsoft Corp.'s Systems Management Server (SMS) and Novell, Inc.'s ManageWise. Unicenter TNG and Microsoft SMS already share information at the repository level, said officials at CA. In Islandia, N.Y. That means managers can distribute software all the way to the desktop via Unicenter TNG, or stage delivery through SMS. Officials said the other three packages also will integrate at the repository level before year's end.

▶ HP earlier this year acquired Norton Administrator for Networks and other workgroup tools from Symantec Corp. The tools will become part of the OpenView suite this fall, said officials at HP, in Palo Alto, Calif. — Patrick Dryden

S H O R T S

### Informix posts $120M loss

Informix Corp., having named a new CEO, posted a $120.5 million second-quarter loss on $164.7 million in revenue.

Robert Finocchio Jr., who last month succeeded Phil White as CEO and chairman, blamed the red ink on shortcomings in Informix's products and weaknesses in its marketing and cost controls.

### UUNet targeted by protest

A group of Internet users last week temporarily blocked postings from UUnet Technologies, Inc. in protest of junk electronic mail. Users said large amounts of spam that clogged Internet discussion groups could be traced to UUnet in Fairfax, Va.

Company officials said UUnet was unfairly targeted by an illegal action and added that it has implemented new technology to identify the source of unwanted messages and filter postings.

### Smoking system delays traders

An overheated, smoking computer at the New York Mercantile Exchange last week shut down last Thursday, preventing traders from checking their commodity futures transactions for about 40 minutes. The exchange used a backup system until new computer parts were installed.

### IRS goofs with penalty warnings

The Internal Revenue Service recently mailed about 90,000 warnings that erroneously threatened taxpayers with penalties for failing to file the proper tax form for domestic employers.

The warnings told taxpayers to file a now-outdated Form 940. The IRS computer system that issued the warning didn't recognize tax returns that had correctly filed a Schedule H for domestic workers. The IRS plans to mail out an apology.

### Pass the test, earn $10,000

A New York company that runs independent testing centers to certify Microsoft Corp. systems engineers and Novell, Inc. NetWare engineers is offering successful clients a guaranteed $10,000 salary hike. Lasap Corp. officials said that if a customer's income doesn't increase by at least double their investment in the testing program, it will pay the difference.

### NFL vs. newspaper on URL

The National Football League and The Florida Times-Union in Jacksonville are battling over whether the paper's World Wide Web site (jaguars.jacksonville.com) crosses the fair-use impression that it has NFL authorization. Talks are being held to resolve the dispute.

SHORT TAKES Microsoft today will post a beta copy of FrontPage 98, its Web page creation tool that includes wizards for building simple Java applets. . . . America Online, Inc. reported a quarterly loss of $11.8 million, compared with a profit of $16.1 million in the year-earlier period. Revenue rose 42% over the same period, to $475.7 million. . . . New York-based KPMG Peat Marwick LLP plans to create a 900-person team dedicated to integrating Microsoft enterprise applications on Cisco Systems, Inc. networks. The alliance targets electronic-commerce, financial services and health care markets. . . . Novell appointed former IBM Vice President John Slitz as its senior vice president of corporate marketing to revitalize its lackluster Waro marketing efforts. . . . Marimba, Inc. in Palo Alto, Calif., will issue UpdateNow, an upgraded "push technology" tool that lets application developers working in C and C++ update of applications over the 'net.

# AS/400 forges ahead while looking back

*By Tim Ouellette*

IBM IS TAKING a look back as it pushes the AS/400 into the future.

IBM next week will finally announce its next-generation-RISC models for the midrange system [CW, Jan. 20]. But it is also preparing an updated version of its Windows 3.1-to-AS/400 software to make sure that users who still run the venerable operating system can keep up with the changes.

Called Client Access/400 Enhanced for Windows 3.1, the new version will improve the TCP/IP support and performance of Windows 3.1 connections to the AS/400. That will give users a chance to manage upgrades to Windows 95 or Windows NT without throwing out all their Windows 3.1 machines.

In fact, IBM officials estimate about 60% of all AS/400 shops still have Windows 3.1 users who access the system.

"IBM could have just moved on to the slick new stuff, but this is a real value that we don't have to upgrade everything right away," said Tom Wolfe, an AS/400 support manager at SmithKline Bee-

cham Corp. in King of Prussia, Pa.

The pharmaceutical giant is preparing to migrate its 30,000 Windows 3.1 users worldwide to Windows NT. But the company didn't want to be forced off Windows 3.1 too quickly because its connection software for Windows 3.1 wasn't up to date or fast enough to keep up with the improvements of its 10 AS/400 machines.

**WHAT'S INSIDE**

Features in the upgrade include native TCP/IP access to the AS/400, PC-oriented keyboard mapping and improved performance for Anynet connections to older AS/400 applications.

"We have an internal TCP/IP network, and the new TCP/IP support was the biggest thing for us," Wolfe said. "Without this new version, I was concerned about the performance of our AS/400 applications that would have to keep going through gateways."

Another beta test site, Springfield College in Springfield, Mass., has 85 users who use Windows 3.1. The connection software gives them breathing room to decide whether to upgrade to Windows 95, said AS/400 administrator Mark Zaborowski.

Client Access/400 Enhanced for Windows 3.1 is now in beta testing. The final version will be released in the next few weeks. IBM officials wouldn't reveal pricing plans.

In an interesting twist, some elements of the new Windows 3.1 product will find their way into the next version of Client Access/400 for Windows 95/NT, which will start beta testing soon.

"With the improvements, there will be a better ease of operations between the two products," said Christy Stevens, a Client Access manager at IBM. □

# Vendors get behind digital certificate security

By Mitch Wagner

MAJOR VENDORS are lining up behind digital certificate technologies in an effort to beef up user security on the Internet. Strategic initiatives from Netscape Communications Corp., Microsoft Corp. and IBM are in the works.

Netscape last week adopted a hardware standard for including digital certificates in smart cards, PC cards and other hardware tokens.

Netscape has certified that tokens from six hardware vendors work with Netscape's Communicator. The vendors include Datakey, Inc. in Burnsville, Minn., Fincher International Systems Corp. in Naples, Fla., and Security Dynamics Technologies, Inc. in Bedford, Mass.

Managing digital certificates in tokens such as smart cards could be a big security benefit to companies that transact business on the Internet, said Jang Jeon, vice president of electronic commerce at Liberty Financial Cos. in Boston.

"It's an ideal application for smart cards. It's much more manageable than trying to manage the [encryption] keys in software," Jeon said.

IBM in early fall plans to launch an outsourcing service to manage digital certificates. IBM will track software-based digital certificates and will help users issue, store and revoke the certificates based on policies set by its customer companies.

Microsoft also is building digital-certificate support in to its Internet Information Server 4.0, which is now in beta, for users to issue and manage their digital certificates.

The server, due in the fourth quarter, will compete with offerings from Netscape, IBM, GTE Corp., VeriSign Inc. in Mountain View, Calif., and Entrust Technologies Ltd. in Ottawa.

The development comes as a few pioneering users look to digital certificates to provide authentication services for electronic commerce, replacing annoying user identification and password combinations.

"Digital certificate technology protects our shareholders from unauthorized account access, [and] it raises a hurdle for peo-

### ELECTRONIC COMMERCE

ple who want to attack our site," Jeon explained.

Liberty Financial uses software-based digital certificates from BBN Corp. in Cambridge, Mass., to authenticate users for its personal-finance World Wide Web site.

## WHAT IT IS

A digital certificate is a unique, encrypted data string that resides in Internet client software, such as Communicator or Microsoft's Internet Explorer, and in commerce servers.

Chris Sagovac, a senior programmer/analyst at American Credit Indemnity Co. in Baltimore, said the certificates are easier to administer than customer log-ins.

"All those passwords get a load on the help desk when the user forgets them or has a problem. And it frustrates users — they just want to get into the site and get their jobs done. They

don't want to have problems just because they accidentally had their 'Caps Lock' key on," Sagovac said.

But digital certificates still have potential problems.

Ira Machefsky, an analyst at Giga Information Group in Santa Clara, Calif., said a proliferation of digital certificates could create headaches for information systems managers charged with tracking them all.

Many users are waiting to see if the technology shows itself to be valuable as it matures.

"We haven't found that we need them to do the job," said Allan Citron, senior vice president of multimedia at Ticketmaster Corp. in Los Angeles, which sells event tickets over the Internet.

"We're going to hang back and look to see if they gain acceptance or not," he said. □

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## PRIVACY DEBATE

# Government 'net efforts stymied by authentication

By Sharon Machlis

ARE YOU WHO you claim to be? The difficulty of answering that question in cyberspace is the biggest obstacle to government agencies offering services to citizens over the Internet.

Agencies currently publish reams of forms, policies and other information on the World Wide Web. But projects in which citizens can pay their taxes or request benefits remain mostly small-scale pilots.

"We're already putting up everything we can on the Web," said Paul Grant, co-chair of the Federal Electronic Commerce Program and deputy assistant secretary of defense. "What we have trouble doing is providing service to one individual. We need a way to positively authenticate who we are talking to."

"We are at a bit of an im-

passe," agreed T. Louis Gutierrez, chief information officer for the Commonwealth of Massachusetts. The state already lets residents renew their auto registration and pay civil traffic fines over the Internet, and it is about to launch a test to receive weekly mortgage information from banks. The information will be validated via digital certificates.

## ONE SMART CARD

But the long-range problem is how to scale authentication technology so it can be used not only for one task, but across government agencies. Gutierrez said. "I think smart cards could be very helpful in authentication over the public network. But I fear we will be carrying wallets full of smart cards."

The authentication issue sparked an uproar this spring when the Social Security Ad-

ministration attempted to transmit personalized benefits estimates over the Web. Those estimates include earnings data, and critics charged that anyone could get that sensitive information if they had the necessary identification data: Social Security number, place of birth and mother's maiden name.

The Web site required more identification than if taxpayers mailed a paper request for their data, said John Sabo, director of

the agency's electronic services staff. But many people are more comfortable communicating via the post office than the Internet, whether or not such views are warranted, he said. "The core issue was trust," he said.

A successful Web site implementation should give customers the option to participate, Sabo said. At the Social Security Administration, one suggestion was that taxpayers could request that their data be put online via

a check-off box on their federal tax returns.

Social Security's two-way Web service was suspended while the agency held a series of hearings around the country seeking input from technology specialists, privacy advocates and the general public. The agency wanted to know whether to resume services, and if so, how?

Sabo said the hearings convinced him there is a need to educate users about Internet technology, and a need to change the traditional IS mindset of safeguarding an organization's assets to one that focuses on customers.

"In this crazy, open, digital world, you're going to have to protect customers," he said. □

> **Many people are more comfortable communicating via the post office than the Internet. The core issue was trust.**
>
> — John Sabo,
> Social Security Administration

# Cross-platform concerns

▶ Some fear Microsoft/Apple pact will further splinter Java camp

By Sharon Gaudin

SOME 30 SUPPORTERS of a standardized Java said they are concerned about Microsoft Corp.'s newly formed alliance with Apple Computer, Inc.

In the multimillion-dollar alliance announced last week, Apple agreed to embrace Microsoft's Internet Explorer as its default browser. Both companies agreed to ensure compatibility between their Java virtual machines (see story, page 6).

The announcement raised fears that "ensuring compatibility" might mean embedding Microsoft-foundation classes in lieu of the standard Java Foundation Classes from Sun Microsystems, Inc.

Microsoft less than three weeks ago boldly proclaimed it would ship only its own libraries, throwing up a formidable obstacle to Sun's efforts to make Java an industry standard [CW, July 28 and Aug. 4].

"I think this was a fantastic deal for Microsoft. They pulled

off a coup," said Brent McWatters, core products manager at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "If you optimize a Java application for Windows, it won't run on Macintosh. If they can get Microsoft's classes on Apple's Java Virtual Machine], Sun will have a hard time convincing anyone to use theirs."

Meanwhile, Apple is focused on collaborating with Sun and Microsoft, said Russell Brady, platform product manager at Apple. Sun's foundation classes already are part of Apple's virtual machine. He wouldn't say if Apple will embed Microsoft's classes or what exactly would make them compatible.

## MARKETING DANCE

Jon Kannegaard, vice president of software products at Sun's JavaSoft unit, said the Java-focused buzz around the Microsoft/Apple deal is simply Microsoft's marketing dance. Apple, a Sun licensee, is still firmly behind the Java standard, he said.

Kannegaard also said that under its license with Sun, Microsoft can't embed its virtual machine on the Mac OS. Microsoft's virtual machine will sit inside the Internet Explorer browser. Apple is building its own Java Virtual Machine.

But the more smacks of more splintering in the Java camp, said John Bozzi, an analyst at Hurwitz Group, Inc. in Newton, Mass. "When people talk about cross-platform on the desktop, they're talking about crossing from Windows to Apple," he said. "It should be write once, and run anywhere I give a damn. And I really give a damn about Windows and Macintosh."

Tom Obrey, chief operating officer at PixelMedia, a multimedia development company in Portsmouth, N.H., said if Apple adopts Microsoft's foundation classes, he will get on the Microsoft train.

But he used to bite only for the desktop. Java's cross-platform capabilities still are unchallenged on back-end servers,



PixelMedia's Tom Obrey: "Microsoft has an inherent advantage in any battle for the desktop"

network computers and consumer devices.

"Microsoft has an inherent advantage in any battle for the desktop. It's hard for anybody to compete in a market that is 95% controlled by a single organization," Obrey said. "But on the back end, Unix is the homepower and the place where the work is being done. There's nothing Microsoft can do about that. That's where Java has a chance."

"The whole reason Microsoft made that deal was to get a mil-

lion more seats for its virtual machine," said Michael Pitoniak, principal software engineer at qCom Corp. in Boxboro, Mass. "Microsoft is trying to break this cross-platform nirvana that Sun is trying to sell."

"We don't know where to go and what to do," he said. "Microsoft is trying to take away the core [standard cross-platform capabilities] of Java. But we'll probably go with Microsoft." □

Senior writer Kim Girard contributed to this story.

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# Security, interoperability hound NT intranets

By Laura DiDio and Carol Sliwa
SAN FRANCISCO

ON THE EVE of this week's Windows NT Intranet Solutions show here, users said their biggest challenges are interoperability, security and training.

Information systems managers at a dozen Fortune 1,000 firms told Computerworld that they had to overcome obstacles to set up NT-based intranets.

"I want to be able to access older systems and networks from within Windows NT without using communications middleware," said Paul Soares, general manager at Alden Buick Pontiac in Fairhaven, Mass. Soares said he spends thousands of dollars on middleware to link his NT networks with non-Microsoft Corp. equipment.

Mike Sidell, director of IS in the internal audit department at

Charles Schwab & Co. in San Francisco, agreed.

"Right now, there's inconsistency between what is supported in Microsoft's and Netscape's respective browser technologies, and that's a pain for us because we use both," Sidell said. For example, ActiveX controls are supported in its Internet Explorer browser, but not in Netscape Communications Corp.'s Navigator.

"Because we can't use ActiveX on Netscape Navigator, we have to resort to JavaScript, which is excellent. But it takes longer and costs us anywhere from 50% to 100% more to develop an application," Sidell said.

John Hamer, a partner at Andersen Consulting in Chicago, agreed. Andersen is building a worldwide intranet connecting Andersen's 55,000 users during the NT intranet log-in process because NT keeps all its

authentication information in RAM.

An organization with 20,000 users would consume 12M bytes of RAM, which is "just too much," Hamer said.

David Kruglov, chief information officer at Data Track Systems, Inc. in San Diego, said security is his biggest concern. He said intranets have made a "huge difference" to his business. "Our intranet/extranet has removed telecommunications barriers and cut our phone



Alden Buick Pontiac's Paul Soares: The firm spends thousands on middleware

costs in half," Kruglov said.

But now that Data Track's intranet is open to its business partners, the company has had to install multiple layers of security, including encryption and stand-alone firewalls.

The extra traffic also has meant increased bandwidth.

"Windows NT and Internet Information Server give me the best features and functionality," Kruglov said. "But performance can degrade when we get a high number of data-intensive hits.

It's still slower than some of the Unix solutions."

Kurt Guerrero, a LAN architect at Northern Trust Co. in Chicago, said the main issue isn't products or performance, but getting his end users and customers to overcome their fear of new technology and use the corporate intranet.

Northern Trust has standardized on Netscape's Enterprise Server for its intranet platform.

"We've got tons of information on our intranet about company products and projects and all sorts of status updates. Now it's just a case of getting them to use it," Guerrero said. □

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# Expo will showcase intranet apps

By Laura DiDio

MICROSOFT CORP. will have a near-invisible presence at the Windows NT Intranet Solutions show this week at San Francisco. But that won't keep several dozen vendors from showcasing intranet applications for the Windows NT platform.

The show, expected to draw more than 10,000 users, will feature a technical training center, a hands-on clustering lab-

oratory and a Unix-to-NT integration lab. There also will be demonstrations of NT's intranet and Internet capabilities.

Mike Sidell, director of information systems in the internal audit department at Charles Schwab & Co. in San Francisco, said seeing the latest third-party applications at the show "is immensely helpful when I sit down with my network administrators and engineers to plan the most flexible intranet infra-

structure for our business."

Oracle Corp. in Redwood Shores, Calif. will announce the its Very Large Memory database for Digital Equipment Corp.'s AlphaServers running NT 4.0. It will improve scalability by removing the current 2G-byte memory constraint imposed on Windows NT applications.

The AG Group, Inc. in Walnut Creek, Calif. will unveil EtherPeek for Windows 2.0, a network and protocol analyzer. It offers real-time and post-capture packet analysis and packet decoding. □

NEWS

# Fed agencies: Year 2000 under control

▶ *Despite GAO concerns, executives say efforts are on track*

*By Sharon Machlis*

WILL THE federal government's computers know what day it is on Jan. 1, 2000? It depends on whom you ask.

"We are concerned that time is running out," said Joel Willemssen, director of information resources management at the U.S. General Accounting Office, Congress' investigative arm.

Several major agencies, including the Defense and Treasury departments, already missed a June deadline for assessing their year 2000 problems. "How are they going to catch up?" Willemssen asked.

### THE SKY ISN'T FALLING

But several federal information technology executives said their efforts are on track. "Congress is doing this 'sky is falling' thing," said Lisa Westerback, director of the U.S. Department of Commerce's Office of Information Planning and Review. "GAO's job is to be critical, and that's what they're doing."

Westerback said she is "quite confident" that year 2000 problems will be fixed in her department on time. And she said the upbeat forecasts from the White House Office of Management and Budget (OMB) are "more on target."

At stake are trillions of dollars that touch every aspect of the U.S. economy, from tax collections to Social Security payments and from government contracts to loans for mortgages, education and business.

"There are 885 days left, [so] I have 884 sleepless nights [to go]," Lisa McClenaghan said recently. She is the U.S. Department of State's chief information officer.

Federal CIOs said the technical issues are pretty straightforward. But the management challenges, such as "keeping everyone enthused and on track," are more difficult, Westerback said.

Although the OMB's preliminary estimate for fixing government year 2000 problems tops $2.7 billion, Congress hasn't provided the additional funding. That means other information systems projects must be pushed back while the year 2000 glitch is addressed.

At the State Department, for example, financial system upgrades are being delayed, and staff attention and resources are devoted to the year 2000 fix.

### PAYING FOR THE OLD, NEW

And agencies can't count on new systems coming online in time to replace legacy systems that aren't year 2000-compliant. A Medicare claims-processing modernization program, initially targeted for 1999, for example, has been pushed back into the new millennium — meaning money must be spent to fix the old system and pay for the new one.

The decision to replace instead of repair a noncompliant system must be made soon because of the long times needed for procurement, design and installation. "If you wait too long, it becomes high risk," Willemssen warned.

Several federal CIOs expressed confidence that they will finish their year 2000 work in time despite congressional worries. The U.S. Department of Health and Human Services, for example, expects all its important systems to be in full compliance by the first quarter of 1999, said Neil Stillman, deputy CIO of the department.

And Stillman said he believes the rest of the government will meet the year 2000 deadline as well.

"I can't believe there are going to be any major failures," he said. "There's too much publicity, too much at stake." □

### All hands on deck

The U.S. Navy is on track to fix all its mission-critical systems by December 1998, the Navy's year 2000 coordinator said after a servicewide assessment meeting last week.

"Most of our big, major weapons systems don't have a problem, but we have to evaluate every one of them," Navy Cmdr. Gary Bruns said. The Navy's review started will be analyzed and corrected before January 1999.

It will cost an estimated $95 million to search for and fix year 2000 problems across the Navy and Marine Corps. Large numbers of IT staff are being devoted to the problem, including more than 80 people at the Naval Air Systems Command alone.

— *Sharon Machlis*



**YEAR 2000 PLANS FOR FEDERAL AGENCIES**

|  | 1997 |  |  |  | 1998 |  |  |  | 1999 |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | March | June | Sept. | Dec. | March | June | Sept. | Dec. | March | June |
| Commerce |  |  |  |  |  |  |  |  |  |  |
| Defense |  |  |  |  |  |  |  |  |  |  |
| Education |  |  |  |  |  |  |  |  |  |  |
| Health & Human Services |  |  |  |  |  |  |  |  |  |  |
| Labor |  |  |  |  |  |  |  |  |  |  |
| State |  |  |  |  |  |  |  |  |  |  |
| Treasury |  |  |  |  |  |  |  |  |  |  |

● Assessment  ● Renovation  ● Validation  ● Implementation

Source: Office of Management and Budget, Washington

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# Deal to embed planning engine in SAP's R/3 is dead

*By Randy Weston*

SAP AG's unprecedented plan to open its tightly closed R/3 product by using another vendor's technology has been derailed. Computerworld has learned.

The German software giant planned to embed in R/3 an inventory planning engine from i2 Technologies, Inc. in Irving, Texas. But SAP America, Inc. President Paul Wohl confirmed the deal is dead.

The two vendors couldn't agree on pricing for the i2 engine, Wohl said from SAP's U.S. headquarters in Wayne, Pa. "We are renegotiating the relationship. Even if it used to embed the product, we will continue to have i2 as a complementary software [partner]," he said.

Wohl said SAP instead is developing its own planning engine to release in a year.

The planning engine is used to alert users when factory supplies get low, so companies can accurately predict shipping dates of products.

### NEW SAP MODULE

SAP's planning engine will become part of a new supply-chain management module for R/3 that will be detailed at the company's U.S. user group conference Aug. 24 in Orlando, Fla. (see chart).

Until now, SAP has relied on third-party vendors to provide supply-chain functionality to its customers.

SAP has traditionally kept R/3 a very closed system — developed solely in-house — so the i2 deal stood out all the more.

One user, who asked not to be named, said his company based its systems plans on the i2/SAP relationship but may have to rethink the strategy now that the deal is off.

Wohl said SAP will still make R/3 and the i2 software integrate seamlessly.

### Other SAP announcements at Sapphire:

▶ Details of the supply-chain module

▶ Demonstration of an embedded data warehouse

▶ Details of an order-configuration product

That interoperability will be accomplished by tying i2's product to R/3 with SAP's business application programming interfaces — which SAP uses to tie all third-party systems to R/3.

But there will be one difference: Customers will have to buy the i2 engine separately. The engine would have come as part of the R/3 package had i2 and SAP agreed on a pricing scheme for the product, i2's planning engine costs about $1 million or more as a standalone product.

Users desperate for this functionality can still turn to i2 and other supply-chain management software makers, such as Manugistics, Inc. in Rockville, Md., and Numetrix Ltd. in Toronto. □

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### COMPUTERWORLD

For these and other related links, point your browser at www.computerworld.com/links/970811buy&pol.htm

— Getting Federal Computers Ready for 2000
www.comchris.com/gov/
orabu2g.htm

— Commission on the Year 2000 Computer Problem Act
www.senate.gov/
kyerl/no.htm

— OMB report on the progress of federal agencies to correct the year 2000 computer problem is featured systems
www.eop.gov/pa/obra.htm

# Site tracks Guam air disaster

center, which houses the government's World Wide Web server. "I told him, 'The world is looking at us right now, and they need information, and we have the capability to give it.'" he said. "So we put two and two together, and we just got it done."

The Web's importance in disasters — especially in distant places such as Guam — is growing, said Armond Mascelli, acting vice president of American Red Cross Disaster Services in Falls Church, Va. "In Guam, what makes [the Web] really handy is [that] distance tends not to be a factor — you're able to access that information as if it was next door," he said.

"We did not want to raise the hopes of people who thought family members had survived when they actually did not, so I pulled [the list] off," he said.

His fears were well-founded. The list was incorrect: One person listed as a sur-

vivor later died in the hospital.

The excitement of putting out the Web page was also tempered by the grim reality of the crash. There were only 29 survivors in a flight that had 254 passengers and crew. "It really did not impact us until we saw the photos," Villaverde said. "We realized that there was no question that we had to do this. ... There wasn't any limit to the amount of hours that we could put into this."

Okada, Villaverde and Chung all said their job in this crisis represents a new role for IS workers.

"Our specialty is to pump out information, and my expertise lies in supporting our environment technically," Okada explained. "But here I am making a decision to go ahead and create Web pages and create an official Web center. ... I never envisioned myself taking that role at all." □



**Kuentos Communications' site (www. guam.net) received 81,000 hits to the Korean Air Lines Flight 801 crashed. The site typically receives 25,000 hits per day**

Internet traffic to the physically isolated island — 15 hours ahead of New York time and a seven-hour flight from Hawaii — soared shortly after the crash. The government's Web site, which can handle 2,000 concurrent users, was at capacity most of the time. Some people even called long-distance to find out how they could log on.

Guam Internet service provider Kuentos Communications, Inc. said hits at the site, which hover at about 25,000 per day, soared to 81,000 hits the day of the crash, especially after major news organizations such as Cable News Network established hot links.

**CONSTANT UPDATES**

Okada and Villaverde, along with Howard Chung, the systems administrator at the governor's office, began funneling information to the site. They updated it as often as six times per hour and included a continually updated list of survivors. They worked through the day and the next night, getting almost no sleep.

There were some problems.

Discrepancies appeared in the airline manifest listing the number of survivors, missing and dead. Villaverde worried. People were connecting to the Web server and staying on for long periods. He said he believed they were watching the survivor list for changes as the page was automatically refreshed every three minutes.

NEWS

# Tools offer mainframe application face-lift

*By Tim Ouellette*

DON'T CHANGE OR migrate from those mainframe applications. Just give them a new face.

The latest crop of Web-to-host tools is giving businesses the chance to make mainframe applications look like just another World Wide Web page or application component — without altering the legacy code at all.

That is an advance over the previous generation of tools, which placed a typical mainframe terminal-emulation screen within a Web browser screen [CW, Feb. 24].

For example, NetManage, Inc. in Cupertino, Calif., this month will ship Chameleon Hostlink 97. It has new ActiveX controls that let users incorporate terminal-emulation boxes inside their Windows applications or Web pages.

"That gives us terminal emulation, but it looks like our own application," said Aaron Erickson, a senior analyst at Carr Futures, Inc.

The Chicago brokerage uses Chameleon's ActiveX controls inside a Visual Basic application the company provides to its customers so they can remotely access Carr's financial data.

Wall Data, Inc. in Kirkland, Wash., recently announced a similar development kit for its Arpeggio Live host access software, and Teubner & Associates, Inc. in Stillwater, Okla., includes such capabilities in its Corridor product.

### THE PERFECT HOST

This selection of new host access products varies based on scalability and feature offerings

| Product | Price |
|---|---|
| IBM Host Access | Free with IBM Communication Server |
| NetManage Chameleon HostLink 97 | $299 per user |
| Teubner Corridor | $2,750 for 15 users |
| Client Server Technology Jacada | $20,000 for 40 sessions |
| Attachmate Extra Hostview Server | $3,995 |

A slew of other mainframe-to-Web tools are coming on the market as well. Researchers at International Data Corp. in Framingham, Mass., predict sales of up to $1 billion by 2001.

Current offerings from IBM, Open-Connect Systems, Inc. and Client Server Technology Ltd. rely heavily on Java technology for their host access products.

The new server-based products depend on the Web server to manage access and download applets or objects. So companies don't have to install a terminal-emulation product on each user's desktop, which can be costly and time-consuming as more casual users gain access to pieces of mainframe data and applications.

"I don't have to run around and set up distribution of the software," said John Bickel, a network analyst at St. Rita's Medical Center in Lima, Ohio. The hospital wants to use Chameleon to give nursing stations access to host data.

Host access is nothing new, but observers said the latest tools are bringing legacy applications into the PC world with less pain and more gain than previous approaches.

"Web access for the casual user is a triumph of the obvious" because of the simplicity of the Web browser interface, said Nina Lytton, president of Open Systems Advisors, Inc., a Boston consultancy. And products such as Chameleon do "a good, clean, useful, workman-like job," she said. □

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# Servers get back to where they once belonged

pany," he said.

That's what is happening at the National Association of Securities Dealers (NASD).

"Since the remote offices were asking us for Internet connectivity and we were upgrading the lines anyway, it made sense at the same time to bring the boxes back into the data center," said Sam Laughery, vice president for production services at NASD.

The change is breathing life into the data center and presenting new challenges for the IS staff. Users said the data center of the future will house smaller servers alongside the usual mainframes. IS staffers will handle maintenance, storage, security and backup.

"Users are coming back to us saying they need the security, administration and backup the data center can provide," said Charles Jannsvelle, IS center operations manager at the Louisiana Department of Labor in Baton Rouge.


GREAT EXPECTATIONS

Source: 700 IT managers

Servers are migrating to the data center for two reasons. Businesses are more concerned about regaining central control over mission-critical data. And some department users are frustrated by the complexity of and increasing management costs.

Business units may lose some of their power over computer systems, but they still get to control their own applications — free of the long mainframe development cycles of the past — without the nuts-and-bolts management headaches.

Driving some migrations are

> New Unix servers initially
> stayed within the data cen-
> ter. Now remote servers
> still have central backup.
> — Robert Gardner,
> First Union Corp.

keeping a tight rein on where they are placed.

When First Union Corp. last year added Unix servers to its mainframe operations, it decided all new systems had to stay in the data center. Some remote systems were added recently, but IS maintains central control for backups, said Robert Gardner, a systems analyst at the Charlotte, N.C., banking company. Another option is to manage a virtual data center.

At Hewitt Associates in Lincolnshire, Ill., distributed servers may be outside the physical walls of the data center, but IS has always retained tight control over backups and security.

"They come to us, but we control the IS budget, and we have the same people doing mainframe security also responsible for the LANs," said Dan Ealberon, manager of computer resource management at Hewitt.

Improvements in technology make it easier to put servers back in the data center. Mainframes are smaller and less expensive; client/server communications are more reliable; and high-end disk systems are more flexible (see story above).

For example, NASD uses EMC Corp.'s Symmetrix disk arrays, which store data from NASD's Sequent Computer Systems, Inc. and Hewlett-Packard Co. Unix servers. That multiplatform support lets NASD centralize different server types without having to buy disk systems that are tied to a specific vendor, Laughery said.

## HANDLING THE RUSH

To control the influx of servers, experts said data center managers should establish business rules, such as the following:

• Closely define who controls the server and who has access privileges. If some department users still have administrative-level access to their server, they could make changes that throw off IS plans and defeat the whole purpose of the move.

• Don't let the department dump a chunker — an ancient or

## OUT OF THE BROOM CLOSET

After several years of decentralization, many servers wound up in various nooks and crannies of the business.

But even though business units still "own" the distributed servers and applications, companies are learning it can be more prudent to house them in the protected data center.

"For us, up until we built a new data center in June, our data 'centers' were located in corners and closets and rooms where departments kept their systems," said Guy Olive, operations project manager at Pacific Metric Technology Corp. in Waltham, Mass.

Taking such stories to heart, companies that are just starting to use distributed servers are

Now that many companies and departments have agreed to move distributed servers back to the data center, it would be a shame if they found a "no vacancy" sign on the door.

Fortunately, vendors have come out with low-cost mainframes that take up less space, use less energy and require less maintenance. So now there is more space in the data center for reconsolidating departmental servers and storage devices [CW, May 26].

For example, one systems programmer at a large city government data center said the city's move to smaller, air-cooled mainframes left as much more in the building that it's decided to consolidate servers in one place — thus reducing the labor costs of managing far-flung distributed servers.

Mainframe system price are expected to drop in fact than $40,000 per MIPS this year and in some cases could drop to between $5,000 and $8,000 per MIPS, according to the Clipper Group. In the early 1990s, mainframes cost more than $100,000 per MIPS, which led users to buy less expensive client/server systems. And as prices fall, mainframes are gaining more functionality than ever before, including Internet support for Unix, Windows NT and Java applications and the ability to act as high-powered Web servers. So mainframes are becoming more like enterprise servers than the closet, expensive and proprietary systems of old.

And there may be more to come. Come Amdahl's latest hardware vendors, Commercial Data Servers, Inc. in Sunnyvale, Calif., is developing cooling technology that will make low-cost CMOS mainframes chips even faster at very low temperatures.

— Tim Ouellette

proprietary system that lacks documentation and source code — on the data center's doorstep. Some data centers have rigid standards for the servers that can come into their shops, to make sure the hardware and software are up-to-date and the staff has the necessary skills to support them.

• Make business departments pay for special services, such as supporting a chunker.

The upside is that businesses are rediscovering that the people best able to handle server management are the mainframe experts at the data center. Like the Cobol workforce that found itself in demand because of the year 2000 problem, data


WELCOME WAGON

Most large shops expect that new servers will keep company with mainframes in the data center this year

Do you plan to consolidate non-mainframe systems into your data center in 1997?

No  12%

Yes  88%

Source: Summhorne Financial Group, Stamford, Conn.

center employees may find more demands on their time.

And observers say with data center staff numbers remaining steady, there will be more demand for automation tools to manage both distributed systems and mainframe tasks.

"When the systems come back in, head count never comes with them," Richmond said. "They are forced to do more with productivity tools that can manage heterogeneous workflows."

## BACK TO BASICS

A crop of such tools are hitting the market, but in the meantime, data center workers will have to rely on their tried-and-true skills of managing, operating and backing up mission-critical systems.

"With the data center becoming more active, IS staff have to be multidisciplined now" because Unix and NT boxes are joining the mainframes, said John Young, director of enterprise systems planning at The Clipper Group, Inc., a consultancy in Wellesley, Mass.

Experts said the key to success is keeping the doors to the glass house open and showing end users they can get better service and reliability from the data center than from any other source. "While this is a challenge," Young said, "the biggest risk for a data center today is standing still." □

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## Computer Industry

# Briefs

# Users applaud new Cabletron exec

▶ Many say next CEO will help move vendor into the big leagues

*By Bob Wallace*

CABLETRON SYSTEMS, INC.'S hiring of a new CEO is just what the company needs to move into the upper echelon of internet-working vendors, users said.

The $1.5 billion switch and hub maker last week announced that President and CEO Robert Levine will retire effective Dec. 1 and be replaced by 30-year Nynex Corp. executive Donald Reed. Reed also will become chief operating officer.

"I didn't know if I could or couldn't get Cabletron to the next level," Levine admitted. "We needed someone who could run a multibillion-dollar company as we approach that level. And Reed has a much broader job background."

Reed served as president and group executive at Nynex since January 1995 and as chief operating officer at New England Telephone Co. during the early 1990s. He has been immersed in the planned Nynex/Bell Atlantic Corp. merger.

Barbara Maaskant, executive director of information services



OUT
Robert Levine, co-founder and president and CEO of Cabletron

IN
Donald Reed will take over

at Emory University in Atlanta, a longtime Cabletron customer, applauded the change. "They created a networking power and were wise enough to realize that it's smarter to build on that than to start changing it," she said. "They also recognized that the company needed to balance its heavy LAN knowledge with knowledge of the WAN world."

Executives at Rochester, N.H.-based Cabletron said they are counting on Reed's domestic and international telephone company contacts. International sales account for roughly half of total Cisco Systems, Inc. and

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3Com Corp. revenue; international sales account for only 30% of Cabletron's revenue.

Craig Johnson, an analyst at Current Analysis, Inc., a research and consulting firm in Ashburn, Va., said the move shouldn't come as a surprise. "I see this as a positive move in the long run for the company," he said.

Of the Big Four switching vendors, only Cabletron had kept its original management team. "Typically, the people that take the company to the next level are not the ones who started it," Johnson said.

Cabletron should be able to leverage Reed's contacts in telecom markets. Johnson said. "That's the key to winning internationally, and that's where the money is," he said.

"It's a good move for Cabletron and its customers because it positions them to grow substantially," said Bob Currier, director of data network communications at Duke University in Durham, N.C. "They had been on a plateau for quite a while and need to push forward."

Currier said Reed "has strong telecom and data experience and a seasoned executive. That should facilitate some partnerships down the road."☐

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## COMPUTER TELEPHONY

# IBM dials in to growing market

*By Matt Hamblen*

IBM WILL ANNOUNCE today its entry into the computer telephony hardware market with two Pentium-based telephony servers.

The company will be the first major computer vendor to enter the growing market for computer telephone integration (CTI), which lets users administer voice and data functions from one device, analysts said.

**BIG BLUE BACKING**

"CTI didn't take off three years ago, but now we have IBM," said Art Schoeller, an analyst at Gartner Group, Inc. in Stamford, Conn. "Now I'm going to see if they are going to stick with



IBM 7588

it and be serious enough [to stick with it] after a year."

The IBM 7587 and 7588 telephony systems will be sold through value-added resellers, with prices for end users expected to range from $20,000 to $50,000, depending on features, IBM officials said.

Businesses with up to 200 telephone lines will be able to replace more proprietary private branch exchange phone switches with a PC-based open system that provides voice mail, interactive voice response and other services, analysts and IBM officials said.

End users will be interested in the IBM open system product because of lower replacement costs, said Zig Serafin, vice pres-

ident of business development at CallWare Technologies, Inc. in Salt Lake City. CallWare is adding features to the IBM systems.

Whereas it might cost $4,000 to $12,000 to replace a hard drive that contains voice mail software on a proprietary platform, it might cost only $400 with an open system, Serafin said.

Businesses that want to add multimedia for intranet or Internet uses also will want to take their current equipment and create a single point of administration, Serafin said.

**ROCK-SOLID**

Analysts said IBM is converting a durable computer now used in manufacturing and medical settings for use in the telephony platform. As a result, IBM will create a more reliable, long-lasting system.

"Users haven't been willing to trust a PC-based server to handle their voice traffic," said Dan Taylor, an analyst at Aberdeen Group, Inc. in Boston. "They think about Windows 95 crashing, and you can't have that."☐

# SAP/Intel form unlikely E-commerce team

By Randy Weston

SAP AMERICA, INC. in Wayne, Pa., and Santa Clara, Calif.-based Intel Corp. are putting their considerable weight behind a joint effort to develop a packaged Internet-based electronic-commerce system.

The companies last week announced the formation of a company, Pandesic LLC, to handle the effort. But the venture is virgin territory for both companies and has already raised some eyebrows.

"SAP and Intel dominate in completely separate and distinct markets than this. This is not their kind to swim in," said Julio Gomez, Internet commerce analyst at Gomez Advisors, Inc. in Boston. Gomez said most of the key players in this market already had a connection to it.

and back-office logistics such as warehouse and inventory management and financial, shipping and general ledger functions — areas of SAP expertise.

Pandesic is the first to promise such a complete package. Other vendors must

integrate their front-office offerings to customers' existing back-office systems. The Pandesic offering should go a long way to keep down the cost of ownership of electronic-commerce systems for user companies, according to analyst firm

Zona Research, Inc. in San Jose, Calif.

But Gomez and smaller companies — the likely customers of such a packaged system — may not want a SAP-sized answer to their problems. "This may be overkill," he said.

The Pandesic product is due this quarter. It will cost less than $100,000 for the software, hardware and support services. There will be an additional transaction-based fee of 1% to 6%. □

SAP's expertise is in corporate enterprise computing systems and managing business processes. Intel is the dominant desktop chip maker. But the two vendors have lined up partnerships with companies that have worked on various aspects of Internet commerce (see chart).

And Pandesic, in Sunnyvale, Calif., initially will focus on developing a software system that handles Web-based orders

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### SAP and Intel's Partners for Pandesic Internet commerce system:

| Company | Service provided |
|---|---|
| CyberCash | Payment processing |
| United Parcel Service | Package tracking and delivery |
| Citibank | Financial services |
| Taxware International | Sales tax calculations |
| USWeb | Systems integration and consulting services |
| Inacom | Reseller and systems configuration |
| Compaq | Intel-based ProLiant servers |
| Hewlett-Packard | Intel-based NetServer |

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# OPINION

## **Let it go** That Steve Jobs. Talk about a sense of showmanship. There

he was, front and center in the high holy place of Apple Macintosh worship last week's Macworld in Boston. And Jobs morphed into an atheist before the very eyes of the faithful.

He whipped the covers off his $150 million deal with the devil and produced the Prince of Darkness himself, Bill Gates, looming above the multitudes, talking about the great things Apple and Microsoft will do together in their startling new alliance.

Predictably, a contingent of Macintosh believers booed and hissed their disapproval. Jobs had to remind these unhappy conference-goers that "we have to let go of the notion that for Apple to win, Microsoft needs to lose."

Let me add another suggestion for any shortsighted Macophiles: Grow up and get a grip. This isn't religion. This is business.

That $150 nonvoting stake, for which Microsoft paid $150 million, is chump change to the world's richest PC magnate, who not so coincidentally is protecting Microsoft's $1 billion business in Macintosh software. That savvy move to lengthen the life of a rival in desktop software should also look good to those pesky feds who keep launching antitrust investigations at the Redmond, Wash., software giant.

Microsoft also is pledging at least five more years of development for the Macintosh, which has to be good news for users. The Macintosh is one place where Gates would dearly love to see the Office 98 software suite find additional happy homes. Protecting the Office franchise — the single largest revenue stream at Microsoft — is mission-critical to Chairman Bill.

Once the organ music dies down, what matters most to the Macintosh faithful? The continued life and good health of the company that makes the machines they love, running the software they need, sporting the user interface they swear is superior.

Somebody should thank the nice atheist, don't you think?

*Maryfran Johnson*

Maryfran Johnson, executive editor
Internet: maryfran_johnson@cw.com

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On the heels of the DEF CON hackers convention comes...

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## LETTERS

## Bug catchers play important role in quality assurance

THE FUROR ABOUT the alleged extortion attempt by two Danish consultants over a Netscape security flaw would be funny if it wasn't so sad ["Netscape to cash in for browser bug: Bug catcher alleged to squeeze company for biggest bounty," CW, June 16; "Bug payment spat sparks debate on Internet altruism," CW, June 23].

The consultants found a significant defect in the security component of a piece of commercial software — not a friendly, warm little bug. That's a signal that the vendor's quality assurance program failed (or was ignored).

I find it laughable that anyone would suggest that a statement such as "I have information valuable to your business, and it will make your product better. Let's talk about money," is extortion. This is negotiation.

If it takes a little creative negotiation to improve the sorry state of software today, more power to the negotiators.

*Dan Wilson*
Precise Systems Corp.
Edmonton, Alberta
dan@precise.ab.ca

My, MY, BUT CABOCONAM Co. certainly seems to have touched a nerve. JavaSoft's David Spenhoff, among others, is outraged at the thought that people might make a living by finding bugs in software.

He calls such people "terrorists." In the old days, we called them "quality assurance."

Cabocomm's effort to allegedly extort money from Netscape is merely a market response to the fact that software quality assurance is fast becoming as quaint a notion as the full-service gasoline station.

Netscape's bug bounties at least recognize that a customer has done something that Netscape should have done itself.

On the other hand, Spenhoff makes it sound like JavaSoft is demanding quality assurance efforts from its customers as a right.

*Tony Hohenheimk*
Chandler, Ariz.
ahohenhr@msn.com

YOUR ARTICLE regarding Netscape's bug missed the mark. The fundamental issue here is that Netscape is a business decision, not a quality assurance issue, but the business decision not to invest enough in quality assurance to resolve all the bugs.

Why this has become an acceptable way of conducting business in the software industry isn't only inexplicable, but also reprehensible.

Perhaps the situation would be different if Netscape's products were shareware. But Netscape is an enormous enterprise with enormous revenue. It has made some people very wealthy.

How Netscape can reap the benefits of its products and then go deep on those who spend time finding flaws in its products is beyond me.

It's about time we as users demanded more accountability from vendors. You don't need too many large judgments to tip the cost/benefit analysis in the direction of more quality assurance.

*Anthony Phillips*
Somerville, Mass.

## Columnist should dig deeper

As a senior vice president of research, columnist David Moschella should dig deeper regarding Microsoft and whether content vs. software is an important issue ["Content is not software," CW, June 30].

Get real! If there wasn't an overall strategic advantage, Bill Gates wouldn't be doing it.

Just a few years ago, pundits were telling us that Microsoft's control of the desktop operating system would have little or no impact on general software.

Ha! Anyone who has installed a new Microsoft program only to have your older non-Microsoft programs blow up in your face knows what I'm talking about.

Although "software tools Microsoft produces will be available to any content provider," as Moschella writes, do you really believe that Microsoft provides all the tools it has? I know I wouldn't. Anyone can provide content, but if you don't play by Microsoft's rules, you aren't allowed in the game. And if you're good enough to beat them at it, they change the rules.

*Quentin Walker*
Broad Brook, Conn.

# Lashing out wastes the power of the 'net

## Steve Ulfelder

**E**verybody wants to be David, or at least his PR agent. It's easy to be a scrappy underdog. You fight like hell, the end justifies nearly any means and, even if you lose, your pluck wins admiration.

Power is, on the other hand, a drag. It's sober and heavy and old. Goliath, after all, had a record of 112-1, and how many endorsement deals did he get?

I recently wrote a story that detailed the misinformation floating around the Internet about various large companies ("Lies, damn lies and the Internet," CW, July 14). The thrust of the story was that nearly anybody can publish nearly anything they want about nearly anybody — and as a result, there's a lot of garbage being published.

I tried to distinguish between sites that perform a service, such as informing consumers about an automobile recall, and sites that simply stick it to an organi-

> **On the 'net, David and Goliath are peers. David can lash out at the giant or set a better example.**

zation — sites such as www.<companyname>here-sucks.com.

There's a complicating factor, though. Many sites are both: a junior-division pro bad, good, bad and one-sidedness. That prompts some interesting questions about the responsibility of small publishers and the appropriate response for corporations.

But when you suggest that those who use the Internet should exercise taste, judgment and responsibility — and, more important, that they should face the percussions if they don't — interesting questions and subtle nuances get steamrolled. Internet fights get its back up, and you get letters.

And so I did. Many were insightful, but enough about them. Various readers told me I am a corporate lackey with my jackbooted foot on the neck of the common man; a clueless newbie; or a bitter old hack who can't stand to watch my information-filtering power slip away.

One guy even called me a typical journalist. Now *that* hurts.

In a representative complaint, one writer said I was "overly pro-business." But somewhere did I argue that corporate America is pure in the driven snow in its own communication. You don't have to be a corporate lackey to condemn libel. And I'm the first to say that the 'net's vertical communities of common interest are a consumer's dream and can be a business's nightmare.

I've benefited from the Internet's vast power as a consumer tool. When a shift fork in my car's transmission broke a few years ago, I already knew not only that

the problem might occur, but the number of the manufacturer's Technical Service Bulletin.

And that bulletin was issued only after a few dozen 'netizens banded together and proved to the auto manufacturer that they *knew* the shift-fork problem was more widespread than dealerships said.

My car was repaired under warranty. Saved me $1,200. Had I driven in blind, who knows how much stonewalling and denial I would have endured?

Because, yes (let me slip my jackboots off while I say this), companies deny and stonewall and waffle and flat-out lie. Always have, always will. Many corporations dislike the Internet because it lets consumers ignore geography and drill down for very specific information that companies would just as soon keep quiet.

In one of the greatest redistributions of power in the history of the world, the 'net has made David — the public — a publishing peer of Goliath. If David is to consolidate that power, he must accept the responsibility that comes with it. He can use his power to lash out at Goliath, or he can use it to set a better example.

*Ulfelder is Computerworld's senior editor, In Depth. His Internet address is steve_ulfelder@cw.com.*

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# Auto-auditing is all stick, no carrot

## Michael Schrage

**T**he Wall Street Journal had a nifty piece recently about how cost-conscious companies now aggressively use computerized travel booking services to make sure their road warriors fly discount coach, stay over a Saturday night and don't surreptitiously upgrade their hotel rooms from double beds to suites. They're apparently saving a bundle. Hurrah. . . .

This bean counter's bonanza ties in quite neatly with yet another emerging trend in the nascent "corporate surveillance" economy: the use of expert systems and scoring algorithms to scan expense reports for all those hidden vicuna coats, covert bottles of Veuve Clicquot and Vegas-based blackjack bets. As more transactions go network, the ability for firms to cheaply and thoroughly audit themselves leaps by orders of magnitude.

Nothing wrong with that. Organizations are entitled to manage their expenses as they see fit. They're even free to assume their employees are all thieves until proved otherwise. If verification is more cost-effective than trust, then go

where you get the most bang for your buck. That's the American way, right?

But what's so sticky and appalling about this proliferation of auditing apps is that they're all about sticks — punishment. Sure, we can cull networks that catch embezzlers and prod guilty violators, but what about apps designed to reward? Where are the carrots?

That's neither a rhetorical question nor a plea for corporate compassion. Rather, it's a request for IS and its corporate masters to recognize reality instead of treating it like a marginal nuisance. The idea that

we should turn intranets into dragnets — my apologies to the aptly named Jack Webb — has an undeniable logic. Yes, we are fools to ignore the value of networks as tools to enhance and ensure compliance in the corporation.

But we are fools and knaves if we invest the bulk of our ingenuity figuring out better ways to pound nails into our sticks at the cost of figuring out creative ways to plant carrots. We betray our understanding and respect for human nature by not coming up with as many ways to reward our people for clever use of the networks as we do ways to trap them.

Where are the companies that publicly reward the best and fastest response to an enterprise-wide E-mail cry for help? Who pays a bonus to

the employee whose PowerPoint presentation is downloaded and used the most? Who gets rewarded for citing the work of others online? Which organizations are creating internal economies in which knowledge sharing and virtual personal introductions get compensated in cold, hard computational cash or credit?

Those aren't rhetorical questions. They reflect a design sensibility that's being sacrificed or ignored by too many executives in their rush to turn apps into 1097 or 1998. They want to be Big Brother and take the design path of least resistance by investing in surveillance rather than incentives for collaboration.

Our intranets are overinvested in surveillance and punishment and underinvested in incentives and rewards. That asymmetry will ultimately cost more money than it can ever save if we don't respect the reality that humans need networks that can provide both. Organizations that don't develop a better balance are managed by "leaders" who will richly deserve the contempt they inspire. ◻

> **Networks can catch embezzlers, but what about apps that punish – and reward?**

*Schrage is a research associate at the MIT Media Lab and author of No More Teams! His Internet address is schrage@media.mit.edu.*

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WINDOWS NT AND PENTIUM II PROCESSORS HAVE ARRIVED

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OPINION

COMMENTARY

# Class warfare

### DAVID MOSCHELLA

To READ THE HEADLINES, you would think Microsoft's unwillingness to bundle Sun's Java Foundation Classes (JFC) in upcoming versions of Windows and Internet Explorer was an act of war right up there with Caesar's decision to cross the Rubicon. Once again, analogies to civil strife and a fractured Internet abound.

Don't believe them.

To be sure, Microsoft and the burgeoning Java community have a lot at stake. Microsoft is right to view the combination of JFCs and Java Virtual Machines as the seeds of future operating system competition. Why should it deliberately install a rival environment in its own software?

And having watched supposedly anti-Microsoft "allies" such as Netscape, Sun and IBM/Lotus consistently stab one another in the back, Microsoft is wise to take a "show me" attitude toward the need for JFCs. If developers really want these capabilities, Redmond can always change its mind.

Standardized JFCs would be a great way for Sun to extend its control over the Java environment. But the company's rhetoric is far ahead of reality. Although Java eventually will greatly increase the range of devices connected to the Internet, that very expansion will expose the fallacy of the whole "write once, run anywhere" mantra.

Does anyone really believe that complex server logic will actually run on a smart card, pager or cellular phone? Does anyone care? JFCs are effectively an admission that even a standardized language can't assure 100% compatibility.

### THE INTERNET WILL SURVIVE

Neither Microsoft's reluctance nor Sun's hyperbole signals the end of the 'net as we know it. Lost in the vendor shouting match is the simple fact that interoperability is driven more by developers than vendors. The Web has fundamentally inverted the historical programming approach away from one that instinctively reaches for the most compelling tools.

Instead, the Web is driven by whatever technologies are or can be most universally deployed. Today's developers increasingly view their target audiences using this largest-common-denominator approach.

By contrast, private intranet and extranet applications will generate the incompatibilities of traditional business programming. But here, universal compatibility is generally less important than specific application functionality. Proprietary capabilities often are the whole point of moving off the public Internet.

But the simplest reason the Internet won't rupture is timing. Java is here now, and Sun's highest priority is to make it work across today's huge base of Windows, Macintosh and Web browser environments. Well before are even remotely comparable number of Java-enabled appliances, network computers or Windows 98 machines are installed, developers will have fully weighed in on what they expect from Microsoft.

Both Windows and the Internet have proved that where clear standards exists, the IT business will grow more quickly. Java acceptance should be viewed the same way. If Microsoft doesn't support JFCs, the evolution of the Internet might slow, but the integrity of the 'net will survive. Developers will make certain of that. ☐

*Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.*

## Corporate Strategies

### Case Studies • Trends • Outsourcing

# Briefs

# Do users know your data?

► Finding data is one thing, understanding it is another, IS says.

By Craig Stedman

TRAINING MORPHYS data warehouse users on unfamiliar query and analysis tools is one thing. But getting them up to speed on the data itself can be even more challenging for warehousing managers.

Query tool skills get users only halfway home — or not even that far — according to a half-dozen technology managers involved in warehousing projects. Before they can make effective use of a data warehouse or data marts, users need a detailed understanding of the information that is stored there.

Making sure end users know their data "is a full-time job around here for a couple of people," said Joe Bruscato, an internal database consultant at Anthem, Inc. Bruscato is in charge of designing a new data warehouse for the Indianapolis-based health insurer.

### QUICK STUDY

The 650G-byte warehouse, which is due to be fully in place this fall, melds separate data warehouses built by the three companies that merged to form Anthem in 1995. With users facing new and unfamiliar data values and table structures, the data trainers are drilling them "on what information is available and how to interpret and understand it," Bruscato said.

"Tools training and informa-

Anthem's Joe Bruscato: Making sure end users know their data "is a full-time job around here for a couple of people"

tion training are equally different," said Robert Carruth, information technology manager of data warehousing at PacifiCare Health Systems, Inc. in Cypress, Calif.

PacifiCare outsources basic

training on query tools to save money. But data training is done internally because it takes longer and is so important, Carruth said. "Without that knowledge, even if users know a tool,

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# Visa says Java's mature enough

By Sharon Gaudin

VISA INTERNATIONAL, INC. will adopt Java technology for its future bank cards in spite of critics' warnings that Java has a long way to go before it is a mature, stable language.

Visa, which is the world's largest credit card issuer, has

made what may be the largest Java buy-in yet. The company will embed Java chips in its cards, starting early next year [CW, Aug. 4]. The chips will replace the magnetic stripe now used on the cards. The move is expected to change the way credit cards are used and even how people spend money.

Philip Yen, senior vice president of Visa's chip division, said Java works for PCs, "so I don't see any reason to think it wouldn't be just fine for us."

"Java is open, and that's what's important for us," Yen said. "I don't have to worry about whether I'm going to be running my applications on Unix or Macintosh machines. These are the kinds of things I can't worry about."

Yen said embedding the Java chip in the card will multiply its uses. The chip will include a processor and a Java Virtual Machine to interpret Java code.

Java, though, has taken its share of lumps as a newbie on the software development field.

It is young enough that it doesn't have a long list of class libraries, much speed or even general form. But most agree that shouldn't be a problem when it comes to embedded chip cards.

Cynthia Weaver, an analyst at The Tower Group, a financial technology research firm in Newton, Mass., said today's Java definitely has some room for "improvement," especially

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### ELECTRONIC COMMERCE

# Pepsi joins grocers to sip market share

By Thomas Hoffman
SOMER, N.Y.

► TO WIN THE COLA WARS, Pepsico, Inc. will have to do a lot more than generate slick advertising campaigns and hip promotions.

To cut in to the 8% market share lead held by Coca-Cola Co., Pepsico must curry favor and shelf space from the nation's biggest grocers.

Billions of dollars can be saved

And to do that, the company has entered into several electronic-commerce projects with grocery industry giants such as Albertson's, Inc. in Boise, Idaho, and Oakland, Calif.-based Safeway.

The goal is to further automate the product distribution and

Pepsico, page 40

# Corporate Strategies

### Case Studies • Trends • Outsourcing

## Briefs

**Kmart picks Source**

Kmart Corp. in Troy, Mich., has selected Source Co.'s front-end management program to track and coordinate the sales of items located near checkout areas. The program also produces orders and invoice reports. Source provides similar services to 790 retailers. Kmart has 2,122 outlets.

**BDM wins contracts**

The Arkansas Department of Human Services has awarded two contracts worth a combined $15 million to BDM International, Inc. in McLean, Va. BDM will provide the human services agency with year 2000 conversion services and a continuation of BDM's information Systems Support contract.

**Duke/Ganymede deal**

Ganymede Software, Inc. and Duke University have formalized a relationship that provides Duke with network analysis tools and lets Ganymede fine-tune those tools using Duke's access-our network. Duke uses Ganymede's Chariot network performance-testing software in its $40 million DukeNet data communications network. In return, Ganymede can access real-time data and performance statistics on the university's network.

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► *Finding data is one thing, understanding it is another, IS says*

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► Smart cards

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Cynthia Weaver, an analyst at The Tower Group, a financial technology research firm in Newton, Mass., said today's Java definitely has some room for improvement. But embedded chip cards won't need much of the missing functionality, she said.

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## ELECTRONIC COMMERCE

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Pepsico's Ken Harris: Billions of dollars can be saved

**Pepsico,** page 40

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# Visa gambles on Java

when it comes to speed. But Weaver said by the time smart cards really catch on, Java should be mature enough for the job. "We're talking five or six years down the road," she said.

Michael Killen, president of Killen & Associates, Inc., an analyst firm in Palo Alto, Calif., said Java gets faster and chips are getting cheaper with time.

"By the time the banks and the merchants have the systems moving forward, speeds will really have improved," he said.

Michael Love, vice president of the smart-card initiative at First Union Corp. in Charlotte, N.C., said he isn't worried about the state of Java.

"Java gives us a greater selection of what applications we can use. Well over 90% of development in this area is Java-based," he said.

Visa's Java-based cards are expected to change cards from static money into an authorization and identification tool.

Consumers still will be able to buy things on credit, receive cash advances and debit purchases from their checking accounts.

But they also will be able to use their cards as electronic cash at specially equipped highway toll booths and vending machines. People also will be able to use them as identification and authentication tools, giving them access to secured buildings or computers for online transactions.

Yen said Java-based smart cards differ from other chip cards, which generally are built with assembly code or C++ and use proprietary technologies. So if Visa wanted to add a new feature to its cards, it would have to write a separate application for each platform, recall customers' cards and then redistribute new ones with the added application.

To add a new application or feature to a Java card, the user could take it to an automated teller machine and have it downloaded. One application would run on all the Java cards. ☐

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# Do users know your data?

they won't be productive with it," he said.

And it can take users time to catch on. A technology manager at an international restaurant chain said her staff "spent a good part of the first six months" after implementing a data warehouse just answering questions from users about the information and how it was structured.

"They didn't have issues with the technical end of using the front-end tools," said the manager, who asked not to be identified. "That stuff they picked up quickly. It was not understanding the numbers that were coming back to them [on queries] that was the bigger issue."

Data warehouses also can require that users learn a whole new business vocabulary. For example, the medical and surgical supplies that Owens & Minor, Inc. distributes are defined by part numbers in its production systems. But a data warehouse the Glen Allen, Va., company began implementing in the spring switches to the SKU terminology favored by most retailers.

Don Stoller, director of decision services at Owens & Minor, is about to start holding monthly meetings with interested users to go over data changes and how the warehouse can be used. "We want to try to eliminate the fear of not knowing what's out there," he said.

When MCI Communications Corp. builds new data marts, the Washington company often gives users sample versions with a subset of the information. "That gives them some familiarity without us just throwing it over the wall," said Stan Sudduth, manager of analytical services for MCI's corporate data warehouse.

Even if only a few users get involved in warehouse planning, more widespread data training is usually still needed. But early users can help by serving as "knowledge conduits" to other people in their departments, Carruth said. ☐

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# Pepsi sips electronic commerce

"squash the supply chain" by removing layers of paper-based processes. That should ultimately make Pepsico an easier company to do business with.

"There are billions of dollars to be taken out of the supply chain" that can be passed on as savings to consumers and shared by supply/retail partners, said Ken Harris, vice president of information technology at Pepsi-Cola North America, based here. His electronic-commerce plans include Link, a year-old project that Pepsico is working on with Albertson's, a supermarket chain with more than 843 outlets in the western U.S.

Under the Link project, Pepsico and Albertson's are electronically synchronizing product pricing. The companies are exploring other possible efficiencies, such as sharing sales data to better forecast demand and putting invoices online.

"If [Pepsico] is at that level of sophistication today, then they're way ahead of what most suppliers have accomplished" in applying electronic commerce to flatten the supply chain, said Ted Julian, an analyst at International Data Corp. in Framingham, Mass.

Pepsico's business could use a jolt. The company's profits slumped 13% in the second quarter, and its share of the U.S. soft-drink market has remained flat since 1990 at 31%.

Meanwhile, Coke's business has inched-up two points since then to 43%.

A Coca-Cola spokesman declined to comment on the company's electronic-commerce efforts. But if Pepsi is trying to leverage the Internet to slash costs and identify customers "you can be sure Coke and everyone else is doing the same thing," said Michael Killen, president of Killen & Associates, Inc., a Palo Alto, Calif., firm that publishes studies on business opportunities in electronic commerce. ☐

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# Proposed FCC limits may risk WTO pact

By Kristi Essick
LONDON

THE EUROPEAN COMMISSION has warned the U.S. Federal Communications Commission that its proposed limits on foreign companies looking to compete in the U.S. telecommunications market could violate a World Trade Organization (WTO) pact signed earlier this year.

The commission last week said the U.S. risks violating the WTO agreement if it goes ahead with plans to pass a U.S. law limiting some types of foreign telecom competition as part of its implementation of the WTO agreement.

The agreement, which was signed by 68 countries in February, requires the participating nations to open their telecom markets to more competition and to let foreign firms buy a significant stake in domestic communications companies. However, the agreement left some room for interpretation. The U.S. already expressed some discontent at the pact's final outcome last February. FCC officials couldn't be reached for comment. ☐

Essick writes for the IDG News Service in London.

The Skinny on
Network Computers

# THIN CLIENTS

?

# THIN CLIENTS

## Bound for YOUR Desktop ?

by Peter Bochner

If, as the song goes, "tis a gift to be simple," then thin clients, or network computers (NCs), are a very nice present for IS managers. The stripped-down simplicity of their design — a sealed bare-bones computer containing a processor, memory and display functions but no hard drive — promises to lower the total cost of operating computers.

This is music to the ears of many IS managers. But have corporate computing strategies started moving to the NC beat?

Certainly, IS managers are attracted by the lower costs that NCs promise. Per-

haps more alluring is the fact that NCs will simplify their administration task by allowing them to manage a network from a central location, rather than updating or troubleshooting every PC.

However, the flip side of these arguments is that PCs are more versatile, that their prices are falling anyway. And that NCs mean less computing control for the user. In fact, some IS managers feel that if their users lose the desktop functionality they are accustomed to, as well as security of their

personal files, they will, in the words of one, "revolt."

But there are certain users who actually like NCs, says Mike Silver, senior research analyst for Gartner Group in Stamford, Conn., because "the onus is off them as far as getting the system to work."

Adds Audrey Apfel, research director at Gartner, "A lot of users are more accepting of NCs than we expected," perhaps because if they're constrained for resources on the desktop, their applications may run faster on a server-centric NC than on their own PC.

Much of the current thin client vs. fat client debate is theoretical, since the newer NCs are just hitting the marketplace. Most of the companies that have already embraced thin clients to run their traditional Unix and future Web-enabled applications are using what Gartner calls server-centric NCs, intelligent display devices that access and execute applications on a server.

## No leap of faith

These NC models perform terminal-like functions to access any device in the enterprise, from Unix server to mainframe, "without making a leap of faith to a new computing paradigm like Java," says Apfel. Supplied by companies such as Hitachi Data Systems (HDS), Network Computing Devices and Wyse Technologies, most of these systems rely on the X protocol to run Windows applications.

A second class of NC is called client-based by Gart-

THIN VS. FAT Much of the "thin client
is theoretical, since many NCs are just

ner. These systems, offered by IBM, Oracle Corp.'s VARs and Sun Microsystems, require Java-based buffer applets to complete tasks on the client. These boxes depend heavily on the network: If it is down, so are the users.

IBM is shipping its PowerPC-based Network Station, but in July announced that it would revamp its NC line, renaming the Network Station the Series 100 and adding a Windows-like GUI, Internet access and support for Java and Windows applications. Two new NC lines, aimed at higher-end users, are expected later this year.

Sun's JavaStation, which runs the Java operating system and Java-based applications, features a HotJava Web browser and can access Windows applications. It is in use at companies such as FTD Inc. and CSX Corp.

Oracle's NC vision is being implemented on the software side by its subsidiary Network Computer Inc. and on the hardware side by a range of hardware and consumer electronics manufacturers. These boxes will run Java applications and will work with both Netscape's Navigator Web browser and Oracle's Personal Lite Database.

The third class of NC is the NetPC, a hybrid NC/PC that supports a hard drive for loading applications. The NetPC, based on a Pentium processor, will be able to run Windows desktop applications. Microsoft, Intel and seven PC makers will supply the machine, which is considered a centrally managed version of the traditional PC.

## A PC on every other desk?

Two companies — Western National Warranty Co., a Scottsdale, Ariz. company that offers extended automobile warranties, and Burlington Coat Factory
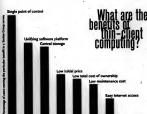
Warehouse Corp., a Burlington, N.H. clothing retailer — have learned that they don't need a fully featured PC on every user's desk. They have discovered that some users still can get by with character-based or X-terminals, while others need access to only a few PC applications and can get by with NCs. Only users who really need them are getting full-featured PCs.

Because NCs, like PCs, employ GUIs, users of both boxes can have Web-enabled desktops with the same look and feel. Uniformity is further ensured because with NCs, software updates are made on the server, so that all users have the same version of programs. Furthermore, NC users cannot inadvertently erase a file on a local hard drive, since there isn't one.

To Mike Prince, CIO at Burlington Coat, all this uniformity is a relief. "We don't have to worry about some guy with a screen saver that causes an application not to run, which happens in traditional client/server environments," he says.

Burlington Coat got excited about NCs early on. "We want to deliver our

## What are the benefits of thin-client computing?

Percentage of users ranking the particular benefits in a Yankee Group survey

Single point of control

Unifying software platform
Central storage

Low initial price
Low total cost of ownership
Low maintenance cost

Easy Internet access

applications in the same way as we deliver Web applications," Prince says. "The network computer is the hardware expression of how to go about doing this."

Since eliminating its last mainframe five years ago, Burlington Coat has run all its applications and Oracle databases on eight Unix servers that run character-mode or X-applications as clients. The firm is currently consolidating the eight servers into three even larger Unix servers from Sequent Computer Systems.

## Apply the brakes

Burlington Coat tracks millions of items in its 250 stores, which run inventory, distribution and accounting applications that it created using Oracle Developer 2000, which will be Web-enabled this year. Each store has cash registers, a server and dumb terminals that will be replaced with NCs over the next 18 months.

A few years ago, the firm began to deploy PCs running Oracle Forms 4.5, with the goal of giving its 2,000 users of VT220 terminals and X-terminals a GUI, and, eventually, access to Web-enabled applications.

But softening sales forced Burlington Coat to put the brakes on its PC expansion, a move that in hindsight proved fortuitous. "We were struggling to support traditional PCs," Prince said. "We needed to provide a work environment that was consistently available."

At that point, the firm decided to go with NCs.

Prince estimates that support costs for NCs will be 75% less than for PCs. "We saved 30-40% on the purchase price of thin clients," he says. "But the real savings are on the support side."

Last October, the company began outfitting 2,000 of its network users with Network Computing Devices, which come with a 15-inch monitor, keyboard, and support for a multi-user, multi-tasking NT-like operating system from Citrix Systems.

In January, the retailer also began deploying Web-enabled @workstations from HDS Network Systems. The firm does not plan to retire the 200 or so X-terminals still in use, and some users will get PCs, but the majority will get NCs. "Everything we buy going forward will be a network computer," Prince said.

Western National initially intended to replace the character terminals of its 115 users with a mix of 30% PCs and 70% X-terminals and NCs. But the NCs worked so well that the company has trimmed the planned PC purchases to 15% of the total, with the rest equally split between X-terminals and Explora NCs. The users are connected on an Ethernet TCP/IP network that also connects a Unix server and two NT servers.

"Products like Explora are filling the gap to let you access the Unix environment and Microsoft programs," says Mike Guthrie, senior vice president of information systems. The NC, he says, "is really a graphical terminal that becomes a window to Unix-based applications or resources on the server."

An NC can do what an NT-based desktop computer can do, says Guthrie, but individual users don't have to back up their own systems, they have security and the administrative overhead is much lower than for PCs.

"I've never been particularly sold that the best way to

do work is to give everyone a PC with lots of applications," says Guthrie. "Lots of people don't need [one]. Claims adjusters, for example, have one dedicated application."

The firm has divided its users into those with NT and Pentium workstations, X-terminal users who don't need PC applications and NC users who occasionally need word processing. "We want only the stuff on the desktop that needs to be there," Guthrie said.

In 1996, the firm replaced its character terminals, and is now replacing the last of its 486-based PCs running Windows. "We wanted to keep a host-based model without having to put up 100 PCs and maintain Microsoft Office on them," Guthrie adds.

## Conclusion

Some IS managers see NCs as a means of giving non-PC users more computing power, as a way to replace dumb terminals with more useful machines and as a way to lower support costs. Most IS managers seem to be trying to head off any internal conflicts by taking a prudent approach to the new devices.

The consensus is that NCs will not make other technologies obsolete in organizations. They will replace dumb terminals and will find a niche in jobs that do not require major computing power at the desktop. But most observers expect that there will be a spectrum of devices to fit the needs of the enterprise. ▮
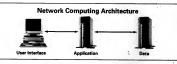
IS ONLY A PROBLEM IF YOU DON'T

SEE IT COMING.

!Candle

# Briefs

By Carol Sliwa

THOUSANDS MORE job listings are making their way onto some high-profile Web sites thanks to a product suite launched last month by a Sunnyvale, Calif., start-up. Cary, offers an Internet-based resume-to-content provider such as Yahoo! or Excite. The database search pulls data in any form or from any source — an advertiser's Hypertext Markup Language-based Web site, a legacy application or text in a database, for example.

The virtual database engine pulls data from a single table and automatically loads the data into the engine's JobCentury Web which is the graphical user interface that uses less than that content provider's Web application program turn profile information from deliver it to their.

End users can access data stored in our databases

E-mail, page 48

## E-mail with AI offers service with a :-)

By Barb Cole-Gomolski

LENDER FANNIE MAE is one of a growing number of companies planning to combine artificial intelligence with E-mail to improve customer service over the Internet.

The ability to send useful automated replies to questions sent via electronic mail or to automatically route customer requests to an appropriate agent can be less expensive than a traditional call center, said William Cross, vice president of customer support services at Fannie Mae in Washington.

"I don't have the luxury of growing my [customer service] staff to keep pace with the rate at which our business is growing," Cross said.

Fannie Mae will use Brightware 1.0 from Brightware, Inc. in Novato, Calif., to send automated responses to customers

E-mail, page 48

## Earn money in spare time looking at ads

By Mitch Wagner

POWERAGENT, INC. plans in October to launch an online direct-marketing service, hoping to help companies market to a consumer base fed up with telemarketing, spam and junk mail.

Consumers control the flow of advertisements they receive by filling out a questionnaire stating which subjects they are interested in. They must rate each ad according to whether they want to see more from that company or in that category or to block all future ads from that company or category. Power-Agent charges advertisers for using the service.

The Menlo Park, Calif., company will pay consumers to subscribe to the service — about $20 to $150 per person per year.

Allan Citron, senior vice president of multimedia at Ticketmaster Corp. in Los Angeles, was skeptical. He said paying consumers to read ads is a sign

Direct marketer, page 48

## ENCRYPTION

## Expert sees dilemma in two bills

By Sharon Machlis

AN INDEPENDENT cryptography expert seen as closely aligned with controversial federal export policies said last week she isn't sure how she would vote on opposing bills now before Congress.

"The whole thing is very hard," said Dorothy Denning, a computer science professor at Georgetown University. "I don't have the answer. I don't know what we should do right now."

**PRIVACY VS. CRIME**

The dilemma lies in balancing the desire for privacy and security and a push by U.S. companies to sell encryption software worldwide against concern that criminal investigations could be hampered by crack-proof encoding.
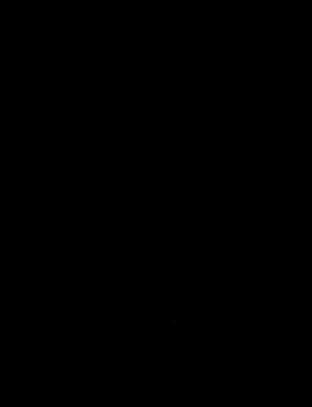
The Secure Public Networks Act, sponsored by Sens. John

Encryption, page 48

# The Internet

Electronic Commerce • The World Wide Web • Intranets

Westech's Paul Burrowes says he hopes Jungiee can cut the workload of the six staffers who spend all day changing ads

## 'Help wanted' gets on Web with less help

By Carol Sliwa

THOUSANDS MORE job listings are making their way onto some high-profile Web sites thanks to a product tool launched last month by a Sunnyvale, Calif., start-up.

Jungiee Corp. offers an innovative way for content providers such as The Wall Street Journal and The Washington Post to consolidate job listings from their advertisers and publish the data on their World Wide Web sites. That enables them to make more money while giving better service to their readers and advertisers.

Jungiee's patent-pending virtual database technology can extract

data in any format from any source — an advertiser's Hypertext Markup Language-based Web site, a legacy application or text in a database, for example.

The virtual database engine pulls the data into a single table and automatically loads the data into Jungiee's JobCanopy Web application, which is the graphical user interface that users see when they visit the content provider's Web site. Content providers pay Jungiee to retrieve the information from advertisers and deliver it to them in a usable form.

End users can then search the data through a Web browser to find, for example, a job in a particular

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### WHAT'S AT STAKE?

■ As of December 1996, there were 27 million Web users, up from 15 million a year earlier.

■ The amount of commerce conducted over the Web is expected to grow from $2.6 billion this year to more than $220 billion in 2001.

■ Today, one-half of electronic commerce transactions are completed over the Web. By 2001, that fraction will almost four-fifths.

Source: International Data Corp., Framingham, Mass.

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## ENCRYPTION

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### PRIVACY VS. CRIME

The dilemma lies in balancing the desire for privacy and security and a push by U.S. companies to sell encryption software worldwide against concern that criminal investigations could be hampered by crack-proof encoding.

The Secure Public Networks Act, sponsored by Sens. John

AT 360 DPI
YOU SEE A LADY IN HER
BATHING SUIT...

AT 720 DPI
YOU SEE HER BATHING
SUIT IS WET

# Tool puts 'help wanted' ads on the Web

field and at a specified experience level and location.

Before launching its job Canopy-enabled site last week, *The Wall Street Journal* regularly duplicated a few thousand listings per week from its print edition to its Web site. That number has swelled to 8,000, according to Tom Baker, business director of *The Wall Street Journal Interactive Edition*.

Content providers such as the *Journal* pay Jungle Canopy $100,000 for the right to use its virtual database technology and $50,000 to license the Job-Canopy Web application. They also pay $250 per month for every advertiser that wants its job listings extracted for posting on their Web sites.

Selling advertisers on the theory that "don't have to do anything," *The Wall Street Journal*, in turn, charges advertisers $5,500 per month for Jungle's data extraction/integration service. "Creating the database this way lowers the barriers on both sides," Baker said. "There's less work to retain the database and keep the joke up to date, and there's less work for the advertiser."

## MANPOWER ISSUE

Westech's ExpoCorp in Santa Clara, Calif., which publishes a high-technology careers magazine and puts on career fairs, started a Web site (www.ejf.com) in February 1995 for its "virtual job fair."

"We get hundreds of E-mails daily from HR professionals



Westech's Paul Burrows: Jungle's virtual database lets us "set up a URL where a client company keeps their job positions and sets up a time on a weekly basis to get all of their job positions"

asking to update their job listings," said Paul Burrows, a vice president at Westech. "They may want to add in positions and take two of them off or make a correction to one. That gets to be a manpower issue, where we have six people doing nothing but tagging and making changes to ads all day long."

If the Jungle technology catches on with Westech's advertisers, the company may be able to hire fewer workers because the information will be automatically delivered for posting on the Web site, Burrows said.

The Washington Post Co., an investor in Jungle, already has had some success with the technology, having sold the Jungle data extraction service to about 50 advertisers, according to Ralph Terkowitz, chief technology officer at the newspaper. □

# Encryption bills pose dilemma

McCain (R-Ariz.) and Robert Kerrey (D-Neb.), would keep most existing restrictions on encryption exports. It also mandates key recovery throughout the federal government and any network paid for by federal funds — a move backed by the Clinton administration but bitterly opposed by many industry executives and privacy advocates. Recovery plans require a third party have access to software coding/decoding keys.

Denning is sympathetic to the need for access to encrypted data for criminal investigations and has advocated the use of key recovery. But she said she doesn't like the provisions that restrict the use of encryption domestically and legally require the federal government to use key recovery. "I think that may be going too far," she said. "The government doesn't need a law to adopt key recovery."

## NO FAN OF SECOND BILL

Denning also expressed discomfort with alternative legislation that would lift restrictions on selling strong encryption abroad.

She bristled at recent reports that she has changed her opinions on the encryption debate. "I see my job as just trying to bring more information to the table we can all look at," Denning said.

A recent report she wrote with William Baugh Jr. of Science Applications International Corp. concluded that worldwide criminal cases involving encryption totaled "at least 500, with an annual growth rate of 50% to 100%... Most of the investigators we talked with did not find that encryption was obstructing a large number of investigations. They were, however, concerned about the future."

For now, the complexity of integrating stand-alone products into mainstream applications means relatively few criminals use strong encryption. But if call-bit encryption, which could take years to break using current computing power, is seamlessly folded into spreadsheets and word processing, its use by criminals would likely spread, Denning warned. "Ten years from now, the situation could be a real disaster for law enforcement," she said. □

# Direct marketer pays users to view ads

of how desperate the advertising industry has become to get users' attention online. Nonetheless, he said, it might work.

"I think almost everything is worth trying at least once, but my biggest question will be whether people will actively sign up to receive more advertising when the average person is already inundated with marketing and promotions," Cisron said.

But PowerAgent hopes to win customer confidence by letting users control the experience. It will have one database for information about the kinds of ads users are interested in and demographic data, such as income level and location, and a separate database for specific identifiers such as name and electronic mail address.

The dual-database approach was designed to give advertisers access to preference and demographic information without specifically identifying each user, PowerAgent officials said.

Users won't have to give identifying information unless they choose to have their fees mailed to them by check; consumers can have advertising information sent to them by E-mail, view it as a private mailbox on the World Wide Web through their



PowerAgent will let users choose the categories of ads they receive

browser or download a client application that displays ads continuously in a small strip at the top of their screens.

Mark Rotenberg, a director at the Electronic Privacy Information Center in Washington, said PowerAgent's privacy protections are good — if they are followed.

"What happens as the advertising pressure increases to know who's behind the names? That's a very powerful force," Rotenberg said.

PowerAgent lists for the first company to pay users to read advertisements on the Web. CyberGold, Inc. in Berkeley, Calif., pays users about 50 cents per ad after users take a quiz on the ads' contents. And FreeRide Media LLC in New York pays users for reading ads with points redeemable for access time at participating Internet service providers. □

# E-mail offers service with a :-)

using Fannie Mae's World Wide Web-based loan software. Brightware, which will ship this month, was designed to automatically reply to Web and E-mail inquiries based on user-supplied information.

Cross said the software will help him avoid hiring several customer service agents per quarter to handle the growing volume of questions.

Fannie Mae uses a previous version of the Brightware artificial intelligence technology to automate mortgage approvals.

Analysts expect products such as Brightware 1.0 to become more popular as sales automation software hits the Web. For example, longtime artificial intelligence vendor Apex Software, Inc. in San Diego in June announced server software called SelectResponse. It automatically replies to E-mail and routes messages to the appropriate person in a company.

Brightware reads the contents of mail messages and uses artificial intelligence to analyze the content, replying or rerouting the message according to rules in a database created by the user.

Jack Rodgers, president of American Finance & Investment, Inc. in Fairfax, Va., which offers mortgages over the Web, estimated Brightware soon will handle about 40% of the 3,500 E-mail requests for information the company receives each week. Brightware "will handle messages in which people requested general information about a product or service," he said. Rodgers added that hot sales leads in which a person is making a direct request to purchase something will be channeled to an employee.

Though "smart" servers such as Brightware promise to save users money by decreasing the need for customer service personnel, there are some drawbacks. First, users have to invest in the software ($95,000 per year or $190,000 for a perpetual license) and the expertise to use it. Second, companies face the challenge of getting customers to use the Web to ask questions. Last, nobody really knows how customers will react when they receive an automated response — the equivalent of a form letter — via E-mail. □

# The Enterprise Network
LANs • WANs • Network Management

# Briefs

## Users drive LAN upgrades

Remote access and
distributed applications
push infrastructure
enhancements

By Bob Wallace

"I LOOK OUT at the crews who are constantly working on the highway infrastructure, and they always seem to be way behind, which causes problems. We didn't want to be caught in that predicament with our network."

That's why John Fleming, MIS director at Ross Stores, Inc. in Newark, Calif., upgraded his LAN infrastructure and boosted remote access speed.

"Workers in the home office couldn't get the access they needed to all our business applications because the infrastructure wasn't up to speed," Fleming said. "Our goal was to provide an infrastructure that gave people access from the corporate LAN or remotely to all our data."

That meant providing sales history, merchandise allocation systems and book of record applications to employees at corporate headquarters, buyers in Los Angeles and New York, a distribution center in Carlisle, Pa., and more than 300 stores in 17 states.

Buyers desperately needed **LAN infrastructure, page 51**

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### Top four applications influencing purchases of high-speed LANs

1 Corporate Intranet
2 Distributed databases
3 Image transfer
4 Internet connection

Based on a survey of 107 large U.S. firms
Source: Infonetics Research, Inc. San Jose, Calif.

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## SWITCH TECHNOLOGY
### U.S. launches ATM system at Cape Canaveral

By Matt Hamblen

THE U.S. AIR FORCE recently installed an Asynchronous Transfer Mode (ATM) network at Cape Canaveral, Fla., to help reduce the network turnaround time between space launches.

Harris Corp. in Melbourne, Fla., the contractor designing and building the ATM upgrade, recently installed 17 ATM switches from Gerand Data Comm., Inc. in Middlebury, Conn. officials from both companies said.

Officials wouldn't discuss the cost of the contract or its performance, citing Air Force restrictions. But the switches start at $22,000 each, putting the total hardware cost at more than $800,000.

**Switch to ATM, page 50**

## R/3 monitoring tool doubles as troubleshooter

By Patrick Dryden

IS MANAGERS who can't find or afford to keep experts in SAP AG R/3 client/server business applications may want to buy a troubleshooter in a box.

Several tools can monitor the performance of R/3 processes that run many corporations, but a newcomer can help keep them running.

### BEYOND THE CALL

Inspector, a tool launched last week by start-up Envive Corp. in Los Altos, Calif., gives information systems managers browser access to performance data. Beta testers and analysts praised Envive for going beyond the current crop of R/3 management software to diagnose problems and suggest solutions.

"Now I'm not spinning my wheels trying to analyze a problem," said Kevin Richardson, Unix/SAP systems manager at manufacturer M/A Com, Inc. in

Lowell, Mass.

Also, Inspector is on duty "even at 3 a.m. Sunday morning," Richardson said, to help anyone on staff keep critical business processes running.

For example, examining how one R/3 program works with its many tables and buffers might take an entire day, he said.

But when Richardson ran Inspector, it took five minutes to find a transaction that had forced users to watch the hourglass icon for 45 minutes while searching a huge table line by line. Then it recommended that the company index the table, and that reduced response time to less than two seconds.

Inspector is the only R/3 tool that offers such advice, said analyst Sue Aldrich at Patricia Seybold **R/3 troubleshooting, page 50**

# The Enterprise Network

LANs • WANs • Network Management

## Briefs

### Added distribution

Houston-based BindView Development Corp. has announced plans to add desktop software distribution capability to its server analysis and reporting tool kit. BindView will license Portable Windows technology from LANovation, Inc. in Minneapolis that can install software and modify settings on Windows 95 and Windows NT systems.

### DG adds NT tool

Data General Corp. in Westboro, Mass., this week will announce plans to let users manage its Intel CPU-based servers running Windows NT Server. DG will preinstall and support ManageX, software for centrally maintaining multiple Windows NT systems, from NuView, Inc. in Houston. For example, the tool lets an operator issue single commands to an attribute and distributed servers instead of logging in to each one to check performance or change passwords.

### CA pacts help on NT

Computer Associates International, Inc. last week introduced versions of its Unix-based service desk software that run on Windows NT. The new applications include Advanced Help Desk, an option that integrates with the last-center TNG enterprise management suite, and Paradigm Service Desk, a stand-alone package. Both include a browser interface for easy access, and a self-learning knowledge base for assistance.

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## Users drive LAN upgrades

▶ Remote access and distributed applications push infrastructure enhancements

Ross Stores' John Piening replaced shared Ethernet pipes with dedicated pipes from the corporate LAN to the databases

*By Bob Wallace*

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*Like other monitoring tools, Inspector flags R/3 performance problems*

*But it is unique in isolating probable causes and recommending fixes*

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# R/3 troubleshooting

bold Group in Boston.

"It's a luxury to have service-level statements without digging through the logs and correlating the events yourself," Aldrich said.

IS managers can get that automated reporting from vendors such as BMC Software Inc. in Houston, Luminate Software Corp. in Redwood City, Calif., and enterprise management platform providers such as Computer Associates International, Inc., Hewlett-Packard Co. and Tivoli Systems, Inc.

But Envive goes much further, Aldrich said. By combining real-time diagnosis, historical trend analysis and SAP savvy, Inspector "helps you figure out the best approach — from buying a new server to just rescheduling a process," the said.

Envive's founders worked for SAP under contract during 1995. They reinvented networks, systems and R/3 source code for weaknesses as part of the Zero-

Down-Time project. At least 60% of performance problems they traced were caused by software that grows with use as data tables swell in size, resources get overutilized and custom modules disrupt program interactions, according to Charlie Koo, Envive chairman.

Inspector uses a behavior model based on the core interactions beneath all R/3 applications to predict possible slowdowns from current symptoms and trace immediate problems

## Switch to ATM

According to Gary Lee, director of marketing for ATM at General DataComm, the ATM network was needed because of the size and complexity of communications and computer systems used at Cape Canaveral.

to their root cause, Koo said.

Prices for Inspector start at $40,000. It is available now.

Although Inspector has proved to be an invaluable tool for daily operations, it can't do everything Richardson needs to maintain all R/3 applications for 850 global users.

His staff still needs capacity-planning help, for instance. "Inspector can project current performance trends, but we need to predict the impact of one-time changes, like rolling out a new factory in Malaysia," Richardson said. So he is evaluating modeling tools from vendors such as BGS Systems, Inc. in Waltham, Mass.□

"One week, the Air Force would need to launch a satellite, and a month later they might need a different network and computing architecture for a military launch," Lee said.

The network uses fiber-optic cables in a Synchronous Optical Network OC-12 backbone, providing 622M bit/sec. of capacity, officials at the companies said. □

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## The one truly open email and groupware solution

# Users drive LAN infrastructure upgrades

the latest information to make the most informed buying decisions. Stores needed to let headquarters know which items were hot and which weren't to avoid buying units that would sit forever in distribution centers.

Piening solved the problem by replacing shared 10M bit/sec Ethernet pipes with dedicated

3Com Corp. 10M bit/sec. pipes from the corporate LAN to the databases.

For remote users, he more than doubled the speed of the lines, from 128K bit/sec. to more than 256K bit/sec.

"We had to take the next step in network evolution to better drive our business," Piening said.

Analysts say tangles such as this are widespread, especially for users building intranets.

"LANs over the last five years have responded piecemeal to local conditions," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "That means most companies haven't done any strategic LAN planning for broad-based information distribution projects like intranets."

## BANDWIDTH DEMANDS

Jim Fey is staring at a LAN infrastructure upgrade as his company builds a large corporate intranet to provide online access to data printed in many manuals and books.

"We're going to need more bandwidth in our main office and in our field offices across the company," said Fey, director of strategic projects at PMI Mortgage Co., a mortgage insurance company in San Francisco.

"That means spending much

more on high-speed LAN switching in the offices and ratcheting up the WAN bandwidth between them."

Fey eventually plans to put up scads of internal documents on the intranet, including man-

uals, training information and underwriting guidelines.

"We want PMI locations across the U.S. to have easy access to everything to our intranet," he said. "That means no bandwidth bothers."□

## NEW PRODUCTS

**NBS SYSTEMS, INC.** has announced Golden MailBridge 3.0, software that allows the exchange of electronic-mail messages across incompatible mail systems and networks.

The Enfield, Conn. company said E-mail messages enter the system, a log is created for tracking, and the messages are converted to match the recipients' mail systems. Golden MailBridge 3.0 supports Lotus Development Corp.'s CC:Mail and Notes, Microsoft Corp.'s Mail and Exchange, and other standardized mail systems.

Pricing starts at $2,950.
NBS Systems
(860) 741-2244
www.nbscom.com

**LANART CORP.** has announced the LANart Single-Mode converter, a cabling converter that enables data transfer between twisted-pair and fiber media.

According to officials at the Needham, Mass. company, the unit ensures compatibility between current hardware wiring and high bandwidth fiberoptic cabling environments. With LANart Single-Mode converter, users can connect twisted-pair hubs, switches and other hardware to single-mode cabling.

The converter costs $695.
LANart
(800) 292-1994
www.lanart.com

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beyond the traditional boundaries that restrict existing proprietary solutions.

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*The Internet Company*

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Your browser has to make it run better.

Microsoft® Internet Explorer runs on the
platforms in your business. The difference
is, it also works with them. That's because
it's not a one-size-fits-all browser interface.
Internet Explorer is designed to take full
advantage of the native technology of each
platform you use. That's a step-by-step
process. Starting with the home team:
Windows® 95. Windows 3.1. Windows NT®.
Then the Macintosh. And in our next
version, UNIX. So whatever the platform,
your users get to see more of everything
on the Internet and intranet. Browser
weirdness goes away. And you've got a
browser that makes it simple to see your
intranet on whatever you have, put
what you went into it, and run it the way
you want.

# Software

**Databases ◆ Development ◆ Operating Systems**

# Revamp streamlines state IS

▶ Wisconsin agency eliminates duplicate processes

By Randy Weston

RUNNING GOVERNMENT like a business isn't just a campaign promise in Wisconsin. It's becoming reality at the state's Department of Health and Family Services.

The state office is revamping its aging information systems — starting with the bureau of licensing and regulation — to make them more efficient and make data consistent across multiple systems within the organization. It also is developing client/server applications

**SYSTEM REVAMP**

to replace legacy systems and using object-oriented application and business modeling to transfer that work to other departments and agencies.

"Within the department, the largest problem was the ability to ask a single question to multiple systems and get a consistent answer," said Mark Clement, development services manager for the state. "Now we are building the software necessary to get a little more standardization between the offices."

The project calls for eliminating duplicate business practices throughout the licensing office. That means taking 20 independent, mostly mainframe-based applications with 22 different functions and whittling them down to eight client/server systems that function together.

The team consists of Clement, a project manager, two analysts and four developers as well as end users who help decide which business practices should stay or go.

The budget for the initial phase, which will involve the licensing bureau within the

Wisconsin, page 56

# Microsoft teaches PCs new languages

By Laura DiDio

IMAGINE YOUR PC with a mind of its own.

As you write text, the PC would retrieve information based on the meaning and context of the words and automatically translate the document into one of several languages. Beyond the spelling and grammar checkers now available, Microsoft Corp.'s futuristic MindNet would include what scientists call a natural language processing engine.

Microsoft has more than 50 engineers working on the MindNet project, facing the challenge of writing the intelligent code necessary for integrated natural language collaboration and document creation. The software

Microsoft, page 56

# Market grows for voice applications

▶ Improved software follows natural speech

By Kim Girard and Nancy Dillon

BARBARA WIGNEY, an employee at Sermens Business Communication Systems, can't read her computer screen because she is blind. But now she has software that reads the information to her.

The software, called Jaws, from Henter-Joyce Corp., helped Wigney move from her job as a call center operator at the Santa Clara, Calif., company, where she had worked for 18 years, to a general agent on the company's internal help desk.

"It's an incredible opportunity,"

Voice applications, page 56

# DeskMan/2 gives managers better control over OS/2

By Esther Schindler

IF YOU ARE responsible for networked OS/2 systems, you might find it difficult to orchestrate system behavior from afar. DeskMan/2, a $90 from Development Technologies, Inc. in Forest Acres, S.C., promises to give control over those desktops —

and it delivers.

OS/2's flexibility has been one of the operating system's greatest advantages, but it can also be a curse. Hapless users can move the crucial Login program object into the Games folder or get text to an unreadable black on black. So they might be ready for a utility that

limits OS/2's flexibility for those who shouldn't be permitted free rein. DeskMan/2 does that by letting users manage, customize, enhance, protect and distribute OS/2 Workplace Shell objects.

DeskMan/2 is an uneasy and obscure as car insurance, but it is just as essential. Some features enhance the desktop, while others distribute desktops across networks. There is more to DeskMan/2 than meets the eye, perhaps too much.
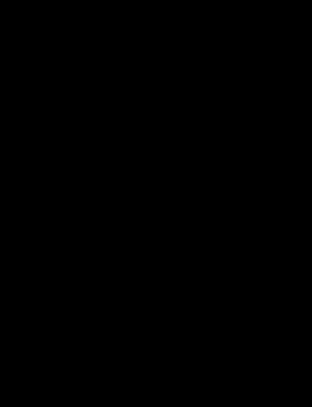
The depth and granularity of

DeskMan/2, page 56

DEVELOPMENT TECHNOLOGIES, INC.
Forest Acres, S.C.
www.devtech.com

**OVERALL GRADE: B**

**Pro:** Lots of useful management tools

**Con:** Weak documentation, and the number of modules makes it hard to get your hands around it

# Software

Databases • Development • Operating Systems

## Briefs

### Database tools grow

Applications that marry databases tools to specific business problems are growing, according to a study by International Data Corp. in Framingham, Mass. Corporate spending on so-called analytic applications, now at about $600 million, is expected to rise to $2.6 billion by 2001, — a 35% compound annual growth rate. The rapid growth will come from businesses that want, for example, data mining tools applied to the specific needs of product managers, marketing managers and others who need to search for patterns in data.

### Warehouse start-up

Start-up Pine Cone Systems, Inc. in Englewood, Calif., this week will announce a service that employs its warehouse management and monitoring software to analyze query performance and usage patterns for customers. Pine Cone's Six-day Performance Check Program costs $25,000, although half of that will count toward the purchase of its software if users buy the tools.

### Informix/Lawson team

Client/server application vendor Lawson Software, Inc. in Minneapolis announced that it will bundle its application package with Informix Software, Inc.'s Online Dynamic Database Server. Lawson becomes the third enterprise application vendor to hook up with Informix in recent months. The Bacan Co. announced last year that it would drop support for its proprietary database in favor of Informix. And in June, Marcam Corp. joined the Informix camp for its application package.

### Enterprise Link for NT

Hewlett-Packard Co. in Palo Alto, Calif., has announced a Windows NT version of its Enterprise Link middleware. Windows NT systems that run Enterprise Link can be used to integrate a company's manufacturing systems with SAP AG's R/3 business environment.

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The depth and granularity of

**DeskMan/2, page 56**

# State streamlines IS

adult services division of the department, is $1.2 million.

Clement said the agency hasn't calculated the cost of the two subsequent phases, which involve the children's services and long-term care groups, because it isn't clear how many objects from the first phase can be reused. But Clement said he expects the cost savings to be significant.

Clement explained that certain processes, such as extracting data or sending a license request through the system, are standard to all departments. His team plans to build objects to

handle such tasks for one department, then plug them in to the next bureau's system.

"Object reuse is going to give us the savings in dollars, which are critical to us," Clement said.

"We are cutting development efforts in half for later projects" by reusing objects developed earlier in the project.

For example, last year the state planned to spend $950,000 to revamp the children's licensing office, which handles tasks such as licensing day care centers. Clement said by persuading the office to wait until he finished developing a

new system for the adult services offices, children's services saved nearly 35% to 40%.

To track those objects and map out the project, the agency is using business process and object modeling software from Proforma Corp. in Southfield, Mich. Clement's staff is also using PowerBuilder 5.0 from Concord. Sybase Inc.'s Powersoft to develop the applications and Microsoft Corp.'s SQL Server as the database.

Karen Boucher, an analyst at The Standish Group International, Inc., said 70% of the cost of most applications provides

infrastructure functions such as data extraction, but it takes modeling to identify and track those functions.

Although many development projects fail to deliver on object-

sharing promises, Clement said his project will succeed because of the amount of user involvement and the degree to which the team has defined the business functions to be shared. □

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# Microsoft's MindNet

giant's goal is to ship MindNet in two years as part of its Office suite.

Other goals for MindNet include retrieving entire sets of documents, creating executive summaries for documents and letting users ask Microsoft's Wizard help utilities for aid in fixing hardware and software problems using natural language, said Jon DeVaan, a vice president at Microsoft.

Users said MindNet could substantially cut the time it takes to do routine document searches.

"If MindNet lives up to Microsoft's promises, it has the potential to help our users achieve greater efficiency and productivity in performing routine tasks,"

> **MindNet could help eliminate a tremendous amount of "unnecessary overhead" associated with routine information searches.**
>
> **- Danny Brown, United Companies**

said Mike Crowley, chief information officer at Rich Products Corp. in Buffalo, N.Y.

Danny Brown, network administrator at United Companies Lending Corp. in Baton Rouge, La., said MindNet could

help him eliminate a tremendous amount of "unnecessary overhead" associated with routine information searches.

"My biggest complaint [about doing a search today] is how much time I waste winnowing down all of the extraneous information to get to the one piece of data I need. Sometimes I just have one key search word and that yields 5,000 hits when I only need five references. I often give up rather than spend hours wading through a mass of documents," Brown said. "I wish I had MindNet loaded right now."

Still, there are some caveats. Microsoft executives worry that users may buy new much system memory MindNet will consume. And until the software is included with Office, it remains to be seen how well it will work with the underlying Windows NT operating system and third-party applications, users said. □

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# Voice applications

ty" she said, noting that the software can be used to help solve employees' computer problems and look up information on the World Wide Web. The software "just opens up so many doors," Wigney said.

Analysts said the accuracy of applications that translate speech into text or text into speech is improving, enabling users to get more out of their PCs and make their jobs easier.

For example, pathologists at the Hospital of the University of Pennsylvania in Philadelphia plan to use speech translation technology instead of a keyboard when working in gloves at a microscope.

The doctors plan to use a system called Clinical Reporter from the Kurzweil division of Burlington, Mass.-based Lernout & Hauspie Speech Products. The software will enable the doctors to dictate lab results into the computer. That information will be automatically added to a hospital database to be analyzed later.

"This will help us achieve greater accuracy, specificity and sensitivity when reporting laboratory test results," said Dr. John Tomaszewski, the hospital's surgical pathology director. The system costs about $5,000 per user, with volume discounts available.

The so-called automatic speech recognition market is about to take off, partly because software advances have led to improved systems that enable users to speak naturally into a PC without having to pause, according to Jackie Fenn, an analyst at Gartner Group, Inc. in

Stamford, Conn. These systems, called continuous dictation, will enable users to upgrade systems that aren't capable of following natural speech.

Fenn estimates speech recognition technology will be used by 30% of business users for communication by 2001. Speech-to-text product sales are projected to be $410 million in 1997, but that number is expected to reach $4.3 billion by 2001, said John Oberteuffer, president of Voice Information Associates, a market research firm in Lexington, Mass.

**COMPANIES WITH PRODUCTS**

Major market players include IBM; Dragon Systems, Inc. in Newton, Mass.; Lernout & Hauspie; and Philips Speech Processing in Vienna, Austria. Smaller, privately held companies include Verbex Voice Systems, Inc. in Edison, N.J.; Nuance Communications in Menlo Park, Calif.; and Eloquent Technology, Inc. in Ithaca, N.Y.

Naturally Speaking from Dragon Systems is the only continuous dictation product available in a box. It costs $490 and has a 30,000-word vocabulary. IBM will ship its continuous dictation product, ViaVoice, by the end of the summer for $199. The Kurzweil division of Lernout & Hauspie plans to release continuous dictation upgrades by year's end.

On the lower end, there are a few discrete applications that have Windows functionality. SimplySpeaking Gold from IBM costs $99, and Kurzweil's Voice Plus and VoicePro cost $99 and $199. □

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# Review: DeskMan/2 helps manage OS/2

DeskMan/2's feature set is impressive. It lets managers control desktop objects and a user's power over them based on log-in ID, class of user or password. For example, managers can remove items from pop-up menus with a few mouse clicks and prevent users from deleting or moving objects.

Managers can set every option with default behavior and set individual overrides on an object-by-object basis.

DeskMan/2 excels at desktop archiving functions and provides the means to propagate a corporate standard desktop across the enterprise.

New features include Desk-

Man/2's enhanced desktop synchronization: A manager can create a folder on the server that contains the enterprise's applications or desktop resources and instruct the client system to automatically update the local folder from the server at specified times.

DeskMan/2 helps support staff manage desktops from their desks, using excellent configuration, installation and distribution. It also takes only a click of the mouse to generate archive functions and provide the means to propagate a corporate standard desktop across the enterprise.

DeskMan/2's Workplace Shell extensions include several welcome capabilities, such as extended drag and drop, en-

hanced folder display and audit trail capabilities.

The software's greatest weakness is that it has so much "stuff" that it becomes difficult to grasp. The manual describes all the features in exhaustive detail, but it would benefit from more anecdotal examples that explain why you would want to use each feature and how much you can accomplish with the software. But it is worth the effort to find out. However, as this is an excellent management tool that every OS/2 shop should explore in detail. □

*Schindler is a reviewer in Scottsdale, Ariz. She can be reached at esther@primenet.com.*

# Servers & PCs

**Large Systems • Workstations • Portable Computing**

## HP preps users for 64-bit migration

*By Jaikumar Vijayan*

HEWLETT-PACKARD CO. is laying early groundwork to migrate users from 32-bit platforms to its upcoming 64-bit Unix and the hybrid IA-64 chip architecture it is developing with Intel Corp.

Palo Alto, Calif.-based HP will set up regional transition centers to introduce the new technologies to some of its larger customers. The centers, the first of which will be set up in the U.S. in the fall, will give beta

customers early access to tools, compilers and services for optimizing their applications on the new platforms.

Toward that end, HP also has started working with — but declined to name — software vendors to optimize their applications for IA-64 and 64-bit Unix architectures.

The moves are a pre-emptive attempt by HP to address any potential application compatibility and performance-tuning issues involved in migrating from its RISC and 32-bit Unix plat-

forms to newer technology. HP has promised that all new technologies and software will be fully compatible with existing platforms.

Starting later this year, all of HP's server products will be fully board-upgradable to next-generation IA-64 chip technol-

ogy. That means users of HP's servers based on PA-RISC chips can upgrade to the new technology by simply swapping out processor boards.

The promise of IA-64 architecture lies in its ability to run Unix and x86-based products

**Highlights of HP's systems road map through 2000:**

- Systems based on IA-64 architecture will become available in early 1999.
- Two more versions of PA-RISC architecture (PA-8500, PA-8700).
- HP will initially support PA-RISC and IA-64.
- IA-64 systems will run Unix and Windows NT and will scale from single-processor systems to 256-way symmetrical multiprocessor systems.

## Big iron charges up client/server apps

*By Tim Ouellette*

FOR SOME USERS, the mainframe is becoming the ultimate client/server machine.

For example, Orange & Rockland Utilities, Inc. opted to keep running financial applications from Walker Interactive Systems, Inc. on the mainframe rather than off-load the job to Unix-based competitors.

"It was a combination of the DB2 environment we are currently working in and some personnel cost considerations of putting in new platforms," said Ken Kastor, director of ac-

counting at the Pearl River, N.Y., mainframe.

The deciding point for users such as Kastor: the scalability and reliability found only on the mainframe.

In fact, Walker, a longtime provider of mainframe financial software, is being joined on the platform by traditional Unix client/server suite developers such as SAP AG and PeopleSoft, Inc. [CW, July 7].

To bolster the scalability argument, officials at IBM and San Francisco-based Walker said they have benchmarked Tamaris

**BIG IRON APPLICATION PLANS**

How many new applications will you put on the mainframe?



All 3%

Base: 176 data center managers
Source: International Data Corp., Framingham, Mass.

## Users want their NCs to do Windows

*By April Jacobs*

ALTHOUGH MOST network computers aren't being installed to replace PCs, users said access to Windows-based applications is important, and they want to see more software designed to do just that.

Even though many network computers are being used to run Java-based, terminal or in-house applications, the ability to run Windows-based applications gives network computers broader appeal and more flexibility.

**MORE OPTIONS NEEDED**

Users can run Windows-based applications through third-party software, which lets Windows run on the server and be presented remotely at a user's desktop. Packages that do that include Citrix Systems, Inc.'s WinTerm software, but the field is too narrow with few vendors providing options, users said.

"Having more options to connect to an NT server opens up the possibility of deploying network computers more broadly," said David Bowser, a distributed

## REVIEW ▶ Toshiba Libretto 50CT

## Windows 95 on a handheld gives Libretto a winning score

*By Chris DeVoney*

THE ACCOLADES for the latest handheld computer from Toshiba America Information Systems, Inc. include "sleek," "incredibly compact" and "full-color screen." But the best compliment to the Toshiba Libretto 50CT is that it runs Windows 95, something no other palmtop does.

Although you can call this unit cheap ($1,995) or ignore its limitations, it heralds a new category of ultrapalmtop computing.

The Libretto 50CT has the below-a-lb. mark (1.85-lb.) with a size of 8.2-in. wide by 4.5-in. long by 1.3-in. deep. A 75-MHz Pentium processor provides the power and is supported by 16M bytes of RAM and a 772M-byte hard disk.

The Libretto's 6.3-in. thin film transistor (TFT) display combines other palmtops with its 640-by-480 resolution at 256 colors. The display's size and clarity is more than adequate,

The Toshiba Libretto 50CT runs Windows 95 and can fit in a coat pocket

# Servers & PCs

**Large Systems • Workstations • Portable Computing**

## Briefs

**Top 10 companies in PC repurchase loyalty last year**

| | |
|---|---|
| Apple | 81% |
| Gateway 2000 | 70% |
| Acer | 61% |
| Compaq | 60% |
| Hewlett-Packard | 58% |
| Dell | 58% |

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# NC users want Windows

information architect at Cummins Engine Co. in Columbus, Ohio.

Bowser said Cummins is heavily focused on deploying Java-based applications and internally developed applications for network computers, but he added that the company also would like to run Windows applications.

"Early on, when we were first looking at [network computers], we were definitely watching what was happening in that direction, and we would still like to see more," Bowser said.

Other offerings include Insignia Corp.'s NTrigue, a third-party application that lets Windows NT run as a multiuser operating system. Also, Microsoft Corp. in Redmond, Wash., recently purchased technology from Citrix that it will use to develop a multiuser version of Windows NT due early next year.

"I am concerned that I may have to change operating systems mainstream if Microsoft decides to make its own multiuser version of Windows NT the latest and greatest thing," said a chief information officer at a large East Coast retail company that has more than 2,000 network computers installed with third-party NT software. He said his main concern is having to switch vendors, which can mean lots of time and money.

Neil MacDonald, an analyst at Gartner Group, Inc. in Stamford Conn., said users are likely to see the field widen, but not by much. Still, they will see more network computer hardware vendors open up support for Windows applications, he said.

"There just aren't many choices in terms of delivering Windows applications," MacDonald said. Between [Microsoft and Citrix], they pretty much clean up the market." □

# HP preps users for 64-bit

and DOS) applications equally well. Chips based on the technology are expected in the first half of 1999. HP's 64-bit Unix will ship in November.

"We want to be able to ensure that the transitions to these new technologies is a no-brainer. But we will not trivialize it either," said Bill Russell, a vice president at HP's enterprise services group in Cupertino, Calif.

**LOST MOMENTUM**

Some observers said HP's moves, which come 18 months before even the most optimistic estimates for the arrival of IA-64 architectures, are an attempt to regain the momentum it lost to Sun Microsystems, Inc. in the high-end server market.

"Sun has been making a lot of noise recently about HP abandoning RISC and Unix at the high end," said James Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H. "So HP has got to be at least seen as doing something" in having a long-term Unix server strategy, he said.

Paul Hoedeman, chief information officer at AlliedSignal Aerospace in Phoenix, said HP's plans won't impact him for now.

"I don't know enough of the upcoming technologies to even know whether I should be concerned" about transition issues, Hoedeman said. "I know it is coming. I know it is something that is going to be important for us. But frankly, none of my users are clamoring" to learn more about the new technologies right now, he said.

For such users, HP is planning at least two more versions of its existing PA-RISC chips, Russell said. The first is the already announced PA-8500 chip, which will start shipping next year. HP will follow that with the PA-8700, probably in 1999.□

# Utility

C/S, its mainframe client/server suite, to support 150,000 concurrent users. Walker's Tamaris C/S is a client/server financials suite that runs natively on the mainframe and works with IBM's CICS transaction system and DBa database.

Although many equate the mainframe with text-based, dumb terminal interaction, users can access Tamaris data from World Wide Web browsers, Windows PCs or terminals.

Besides Orange & Rockland, retail giant Fred Meyer, Inc. in Portland, Ore., and several other utilities have chosen the mainframe package over distributed client/server systems.

"Walker showed us that they could provide us the same enhancements as in the client/server world," Kosior said. "And we can keep our main applications on the mainframe."

For example, a large utility in the South is upgrading Walker's applications and at the same time is using PeopleSoft's mainframe human resources software.

"Based on what IBM has done recently, the mainframe is just a big server," which makes it easier to move distributed applications and servers back onto the mainframe, said an accounting systems manager at the Southern utility.

Examples include IBM's support for Unix code and applications on the mainframe, new support for Windows NT applications and improved TCP/IP connections to intranet and Internet clients.

Because the utility has worldwide operations, it also wanted the mainframe's ability to handle huge transaction volumes without any downtime. ◻

# Toshiba

but there is no contrast control. And like other TFTs, the screen is unreadable in direct sunlight.

The Accupoint pointer is a small, felt-like disk mounted on the inside lid. It isn't as comfortable as a mouse, but adapting to the arrangement is easy.

Coping with the reduced keyboard is much harder. The Libretto's keys are about one-fourth the size of standard keys. At best, you can type with two fingers and two thumbs, but typing more than a few sentences is difficult.

**PRODUCT REVIEW ►**
*Libretto 50CT*

**B+** OVERALL GRADE

**TOSHIBA AMERICA INFORMATION SYSTEMS, INC.**
Irvine, Calif.
$1,995
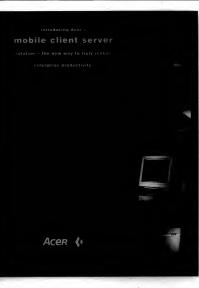
*www.computers.toshiba.com*

A floppy disk drive connects to the handheld via the PC card slot, and Toshiba offers a PC card-based eight-speed CD-ROM player from EXP Computer, Inc. for $399. Tedious problems presented by a single PC card slot — such as having to plug and unplug device drivers and floppy disk cards — can be avoided by buying a Type III PC card slot Port Replicator, which includes a Type III PC card slot.

For most office tasks, I found the processing speed more than acceptable, although the start-up and suspend/restore took more time than I would like. Given its size-related limitations, the Libretto won't replace a desktop computer and doesn't compare well with the best ultraportable, Hewlett-Packard Co.'s Omni-Book 800.

But the Libretto costs half of the Omni-Book and fits in a suit coat pocket. Although it costs twice as much as handhelds or personal digital assistants that run Windows CE, the Libretto is ideal for in-house desk-hoppers and in-the-field personnel. If a palmtop is in your budget, the Libretto 50CT should be the top contender. ◻

*DeVoney is a writer and reviewer in Seattle. He can be reached at chris@cybercitis.com.*

# Managing

## THE

# chat TRAP

**BEWARE: Web communities can be cheap to start, but they're expensive to manage and usually lose money. Do you know what you're getting yourself into?**

By Robert L. Scheier

"**I'm** alone, scared, brokenhearted and pregnant."

Sissi's anguished posting at ParentsPlace.com helps make this "Web community" of 40,000 registered "citizens" an interesting place to visit and a good place to advertise. But few World Wide Web communities make money, and they can be more expensive than you think to maintain.

"A thousand bucks, and I can get a [Web] community," says Mark Hatch, director of electronic marketing at Avery Dennison Corp., an office products company in Diamond Bar, Calif. But the cost of finding guest moderators and kicking off obnoxious members, for example, could be "an order of magnitude" higher, Hatch says. And that would come out of the information systems budget. Because of such fears, Hatch says he plans to bury the discussion area on his site "and watch it like a hawk."

His caution is understandable. Backers claim such virtual communities can be a lucrative business. But of six Web communities contacted by *Computerworld*, only one claimed to be profitable. Most are breaking even or losing money as they try to attract paid subscribers, advertisers or companies that will pay transaction fees to sell goods or services on the sites.

"You have to get to 25 [million] to 50 million page views per month before you begin eking out a small, profitable business" supported by advertising, says Bill Louden, senior vice president of Delphi Internet Services Corp. in Cambridge, Mass. Because the Web communities Delphi creates and runs draw fewer than 1 million page views per month, it relies mostly on paid subscriptions for its revenue of $5 million per year, he says. Delphi, which Louden says is "roughly break-even," now offers 101 forums free on the Web to help draw more people.

One of the most famous Web communities, Electric Minds, Inc. in Sausalito, Calif., came close to collapse before Santa Barbara, Calif.-based Durand Communications, Inc. rescued it by purchasing its assets for an undisclosed sum. The approximately $2 million the firm received in start-up funding wasn't enough to reach the "critical mass" of 25,000 to 50,000 readers per

## A "community" guide

Want to see what a "Web community" is all about? Drop in on these sites:

▶ **ParentsPlace.com:**
www.parentsplace.com

▶ **Delphi Internet Services:**
www.delphi.com

▶ **Mainspring Communications:**
www.mainspring.com

▶ **Well Engaged:**
http://engaged.well.com

▶ **Electric Minds:**
www.minds.com

▶ **Durand Communications:**
www.durand.com

▶ **The Wall Street Journal Interactive Edition:**
http://bis.dowjones.com

▶ **EDrive.com:**
www.eDrive.com

▶ **Planet Direct, Inc.:**
www.planetdirect.com

day needed to sell advertising, says Andre Durand, president and CEO of the company.

Even advertisers who see Web communities as the wave of the future spend most of their ad dollars on traditional media such as magazines and TV. Taylor Made Golf, a Carlsbad, Calif. manufacturer of golf equipment, has found advertising on the IGolf Web community a cost-effective way to find serious prospects, says Kevin May, assistant manager of direct marketing at the manufacturer.

Although Taylor Made is spending more on Web communities this year compared with last year, this is still less than 10% of the firm's overall ad budget, May says.

The following are some of the hidden costs and dangers that can sink a virtual community and leave IS with egg on its face.

## WHAT MAKES GOOD CONTENT?

If you want to charge your customers, you have to run a high-quality community. But what is quality? Some Web "citizens" will stick around only if someone has screened, filtered and organized the postings. Others want pure, unfiltered talk and even welcome those who crash their online parties. The more control you have, the more it will cost you.

Neil Budde, editor of The Wall Street Journal Interactive Edition, says, "We did not want to run a sort of wide-open 'bulletin-boardesque' service" because the more than 100,000 subscribers who pay up to $49 per year expect "a higher level of discourse."

"No posting goes up until someone here has taken a look at it," he says. And this requires one or two full-time staff members. He declined to say whether advertising covers such costs or if the interactive edition is profitable, but he calls discussion an important part of the overall package online.

Online moderators charge as much as 20% of the revenue generated by a hot discussion forum. Louden says, assuming you can find them. The most difficult struggle is finding hosts who know the subject and can gently rein in obnoxious users "without insulting a customer or being called a fascist," he says.

Entertainment Drive, which claims 1 million members for its EDrive.com chat sessions on the Web and CompuServe, doesn't "touch people's content," says Amanda Haas, director of public relations and marketing at the firm. New York-based Entertainment Drive is paid a portion of the connect charges users pay to access its forums over CompuServe, and it generates revenue by selling software that can be downloaded for viewing video clips. Haas says connect charges bring in less revenue than software, but they draw customers to its sites where the software is sold.

EDrive uses a combination of paid staffers and approximately 200 volunteers to moderate discussions and answer questions. Finding volunteers is easy because moderating a forum is "like being prominent in your community," says Sylvia Lacock, director of partner development and special events at Well Engaged in Sausalito, Calif., which provides software and services for online communities.

To boost a site's value, many companies add more expensive content created by their staffs or freelancers. Mainspring Communications, Inc., for example, offers a Web-based membership service that includes expert advice, case studies and discussion groups on new Internet technologies for $495 per year.

Although Mainspring spends more money developing content than on managing contributions, maintaining its "community" will still cost the Cambridge, Mass. start-up "in the low six figures" this year, says Ryck Lent, director of communities. Much of that cost is for the staff to find and schedule online guests, he says.

## LEGAL/IMAGE ISSUES

Suppose a malicious user logs on to your discussion forum and posts a link to a virtual sex site. "How do you handle the liability issues?" Hutch asks.

Site managers report fewer cases of such bad turns in discussion groups where members pay an access fee or receive job-critical information. But free sites require more precautions. ParentsPlace.com requires new members register, and it verifies their electronic-mail addresses, says David Cohen, who co-founded ParentsPlace.com in 1995 with his wife, Jackie Needleman.

With the address, "we can send notes to the person a [Internet service provider] if we feel they've disregarded our [service] agreement," Cohen says.

Approximately every other week, ParentsPlace.com will bar an offender from its discussion groups. As part of its routine screening process, it also deletes postings that contain links to blatantly commercial sites such as adoption agencies and booksellers. Deleting the links "isn't hard at all" as long as someone monitors postings, Cohen says.

## MANAGING CONVERSATIONS

Online discussion forums are like TV talk shows: It takes a good moderator to get the best conversation going. And that takes time and money.

This means knowing when to throw out an icebreaker question, when to cut someone off and when to change topics. Consider the discussions on loss and grieving at ParentsPlace.com. "A user would say, 'I lost a baby through stillbirth. Can I have a stillbirth bulletin board?' A person who lost a baby through stillbirth feels very different from a person who lost a baby three months after pregnancy," Needleman says.

Often, new topics on the unhosted bulletin boards lead to hosted chats on those topics, Cohen says. Such focused discussions are the fastest-growing area on ParentsPlace.com and make it easier to match advertising with subject areas, he says.

All this monitoring makes for a lively site, but it takes time. It takes one of ParentsPlace.com's three full-time employees to schedule hosts for the topic-specific chats who are paid in publicity or gift certificates. It also takes one employee one day per week to monitor, manage and archive the unhosted bulletin boards.

Lent compares his job with that of an editor at a print publication who must find, recruit, manage and pay outside experts, except at Mainspring they usually moderate discussions rather than write articles.

"My key tasks and, frankly, where the spending occurs, are the things that are necessary to bring members into the participatory community," he says. "In a start-up environment and a highly selective audience, customer content quality is the problem." □

Scheier is Computerworld's senior editor, management.

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*Eckhard Pfeiffer, President and CEO, Compaq Computer Corp., Gary Greenfield, CEO and President, INTERSOLV*

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# IF YOU

# build it

## WILL THEY COME?

### By Suruchi Mohan

LAST YEAR, Gary Kovener, an information systems manager at a Global 1,000 company, tried to set up a discussion database using Lotus Development Corp.'s Notes. The goal was to invite comments on specific areas of interest inside and outside the company. But even executives were reluctant to put down their thoughts. They feared their ideas might be perceived as inadequate and, consequently, open to ridicule.

The result: Nobody contributed.

That's fairly typical at organizations that implement groupware as a technology but pay scant attention to changing behavior patterns. The social and cultural issues associated with groupware aren't new, but many companies don't seem to have discovered them yet.

"Groupware gets used [as] glorified E-mail" unless employees see what's in it for them, says Wanda Orlikowski, associate professor of information technology at MIT in Cambridge, Mass.

Changing the incentive system so that employees are rewarded for working with others is key to groupware's success, she says.

#### CHANGING BEHAVIOR

Rewards are essential because workers see information as power, and sharing this source of power isn't easy. Industry observers say. When the Big Six accounting firm Ernst & Young LLP implemented groupware, it paid attention to much larger issues, says John Parkinson, a partner at Ernst & Young in Irving, Texas. "We needed to change people's behavior so that they thought more about the value of collaboration and began sharing experience, knowledge and work practices with their colleagues," he says.

Parkinson says he wanted the company's average competency level to rise steadily to match that of the top performers. He realized that technology could help workers be more efficient if they shared information. But behavioral changes would make it happen faster and make it more effective.

"The reward and recognition system [of even the basic compensation model] was adjusted to include measures of collaboration and participation, as well as contributions of new knowledge and ideas," he says.

Users saw that the forum worked internally and for customers who started getting quick responses to queries, says Charles Carncross, vice president of Buckman's Coatings and Plastic Chemicals division.

Management also worked toward creating a "comfort zone" through active involvement, where everyone felt at ease about using the technology.

This is key. People have to feel safe in their environment, says Carol Anne Ogdin, principal at Deep Woods Technology, Inc., a consultancy in Santa Clara, Calif. The issues aren't all technological. "If the environment is such that people can't say 'I don't know,' how are they going to ask for help?" she says.

Even with this sensitivity, it wasn't easy, Buckman says. It took about three years to get everyone on board the program. And even now, management is constantly striving to fine-tune the system. "Technology will let you increase communication, but culture is how they take advantage of the communication. That's where you get the power — it changes [the individual's] span of influence," he says.

#### LOOK AT THE 'PROCESS'

But to change anything, process must be kept in mind, says Richard Weinberg, principal at Jacobson Group Inc., a groupware management consultancy in Cambridge, Mass. Process, he says, means paying attention to how work actually flows and how people really work, not just taking data and information.

Perhaps the most important thing to remember is that implementing collaborative computing and bringing about behavioral change isn't a one-shot deal, Buckman says. The problem is that most companies look at it as a project. It is a journey," he says.

Kovener knows this now. He is once again rolling out Notes, but this time he's working hard to get executives to participate. For example, he's asking them to look up a Notes database instead of calling a project manager on a particular issue. As for rewards, that's something Kovener wants to do as he continues on his journey. □

Mohan is a freelance writer in Los Altos, Calif.

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Ernst & Young's John Parkinson

Technology such as groupware can help users become more efficient by sharing information, but behavioral changes can make it happen faster and make it more effective

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At Buckman Laboratories International, Inc., a chemical manufacturing company in Memphis, participation in forums and a willingness to share information are part of the annual review process, although the salary structure hasn't changed. But management has been proactive in rewarding collaboration. In 1994, CEO Bob Buckman took the top 15% of contributors to a party in Arizona. Each one received a new laptop and a leather bag, and they went back feeling well-recognized.

But firms often don't take this simple approach. Once the technology is in place, users want to solve their problems quickly, says Ilkka Tuomi, principal scientist at the Nokia Research Center at Nokia Corp. in Helsinki, Finland. "The effort needed to change behavior, processes and incentives is in most cases grossly underestimated. Novice groupware developers and application customers tend to think that it's all about technology," she says.

#### BENEFITING ALL

But the management at Buckman seems to have understood that for technology to be successful, everyone should benefit from collaboration so that it becomes self-reinforcing. For example, an employee posted a question on the electronic bulletin board inquiring why the health plan didn't cover a particular procedure. The issue launched a discussion on the forum that resulted in a better health plan.

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**Groupware can help people work together, but only if you lead them to it**

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# Get ready for the recentralization of information management.

The triumph of the Internet doesn't mean that the decentralization of business computing is here to stay.

## BEYOND THE 'NET: THE NEXT COMPUTER CYCLE

Just the opposite will occur: The Internet's weaknesses will give birth to a new IT era of central network management and configuration control. When every computer is connected to every other and employees are totally dependent on networks, executions will insist on strong central controls to contain costs and deliver expected results.

Today, top executives are being taught many unpleasant lessons about the total cost of computing.

The year 4000 fiasco is one of them. Corporate management is also learning that tighter operational discipline will lower the total cost of owning PCs. If the current estimates of annual savings of up to $4,000 per PC are remotely correct, CEOs will wonder who was installing the more while 200 million PCs were installed.

Other lessons are yet to come. Companies are now paying to replace client/server systems that were recently installed with supposedly faster and cheaper Internet solutions.

The infatuation with the Internet won't last. Loss of control over data, incompatible applications and the threat of security corruption will gradually end business' blind faith in the Internet as an information management cure-all. Billions spent on Web pages and Internet business ventures eventually will be wiped out.

These expensive lessons won't sit well with top executives. They will ask why so many technology projects were aborted during implementation or had such a short lifespan. They will question why IS managers wasted money by abandoning investments in hardware, software, data and training with each generation of new technology.

This time, top management won't be content with more presentations from the CIO. Short-term thinking and build-and-junk habits have become an unaffordable luxury. Last year's IT spending at 3,110 of the largest U.S. firms now

equals their total annual economic value-added. Companies don't have the money to replace systems inherited from prior computer technology cycles.

A backlash against wasteful IT spending will shape the coming technology cycle. CEOs will impose centralized constraints on all future IT investments to make sure they get lasting value.

### THE COMING OF THE NETWORK COMPUTER ERA

The need to control applications, data and security will lead to what I call the network computer era. I don't mean that to be only network computer-like client computing. Network computing dictates that all computers are just peripherals that are maintained, configured, maintained, diagnosed, repaired, upgraded and made secure from centrally managed sites. Such management practices must rely on high standards for reliability, responsiveness and safety.

Network computing also enables centrally administered productivity assessments and remedial training that is managed and assisted by skilled professionals instead of being left to local improvisations by amateurs.

The hallmark of this era won't be a particular hardware platform or operating system. Any microprocessor will be able to run any application as long as nonproprietary codes, languages and standards are followed. With "pure Java," platform-independent computing, universal network connectivity and the doctrine of "write once, run anywhere and anytime," I see for the first time a glimpse that "open systems" technologies could become a compelling reality.

The economic model of network computing also will differ from what we have now. Vendors, consultants and CIOs concentrate almost exclusively on IT costs, which are defined as what's included in the IT budget. That's a misjudgment. When one analyzes the total cost of own-

ing computers, one finds that most of the costs that affect workers' productivity show up as operating expenses, not as IT [CW, July 14]. The new economic model must encompass all of the costs of information handling, including user costs as well as gains in their productivity.

The old disputes that drove arguments favoring centralization vs. decentralization — whether central IS or end users possess the hardware — won't be relevant when everyone has mainframe MIPS in their pockets.

The principal question will be who manages the rules of network control. The CIO may not be the key player in that round. Chances are the technological complexity, economies of scale and scarcity of talent will lead companies to outsource most of the network management tasks. But CIOs will have to make sure outsourcing doesn't hand too much power to the contractor and that the outsourcing agreement doesn't become a trap.

### CIO IMPLICATIONS

CIOs must do more than administer technology resources to cope with the new computer cycle. They must grasp how the demands for increased productivity escalate as billions of low-cost devices interconnect and international competition makes everyone a contender for revenue in the global marketplace.

The job of a CIO won't be limited to management of data processing. In the new era, the CIO's job will cover all information-related business processes. That includes not only the automation of computationally limited business functions but most information-handling and information-coordination activities.

In the network computer world, IT leaders must cultivate and conserve the most costly and valuable elements of any system: data, business processes, workflow, work enlargement, the enhancement of employees' skills and the protection of knowledge assets.

The squandering of computer resources, which has characterized the history of computing so far, is finally coming to an end. Long-term economic benefits, not short-term technology costs, will rule from now on. Whenever that prevails, the forces of centralization will reassert themselves.

*Strassmann's new book, The Squandered Computer (The Information Economics Press, 1997; www.strassmann.com), argues that in the next technology cycle, the demonstrable and lasting economic benefits of computing will get more attention than the annual expenses for computing.*

# If we showed you its actual screen size, we wouldn't have room to tell you how powerful it is.

Space is severely limited, but the capabilities of the NEC Versa® 6200 are not. Its 13.3" active matrix LCD display is the largest and brightest of any notebook. An Intel® 166MHz Pentium® processor with MMX™ technology makes it the most powerful multimedia notebook around. And its modular design lets you customize the computer you need, when you need it.

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## Buyer's Guide

# Digi

# cameras

**BY HOWARD MILLMAN**

Your World Wide Web site just begs for photographs — shots of new products, real estate listings, property damage. . But the challenge is getting quality photos online and doing that quickly, often from a flock of field representatives and branch offices throughout the country.

Fortunately, each new crop of digital cameras is better than its predecessor. The latest cameras from Olympus America, Inc., Eastman Kodak Co. and Minolta Corp. show advances in color quality, image clarity and storage capacity. But all have a long way to go; none can match the superb clarity and color that film-based cameras offer.

High on the list of benefits that digital cameras deliver are reduced image-acquisitions costs, speed, convenience and the productivity gains of posting newly acquired images on a Web page.

Even with occasional use — say once-a-week shoots — these cameras can amortize their cost within a couple of months. Digital cameras eliminate the cost of film purchases, processing and storage. No longer do you have to shoot a roll of 36 slides to guarantee that you get one or two keepers.

You no longer have to send film to a developer, or disks to a printer, and wait for the proofs. Cameras with LCD preview screens let you keep the best of the snapshots and immediately delete the duds. If the photos aren't quite right, upload them to the computer and edit them to your creative heart's content.

### Reviewer's picks and pans

**PICKS:**

**Olympus D-300L: A**
Offers highest resolution

**Minolta DimageV: A-**
Compact and easy to use

**PANS:**

**Casio QV-300: C**
Easy to use, but color accuracy is poor

**Toshiba PDR-2: C-**
Lightweight, but suffers from an inaccurate viewfinder and flawed image quality

Olympus D-300L

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# COMPUTERWORLD

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You get your images in an instant. You can mount the images on your Web site minutes after you snap them. Or product photos can be sent to your customers via electronic mail. No waiting.

If fast turnaround, ease of editing and low-cost imaging matter more to you than image quality, any of the three top-rated cameras that cost less than $1,000 can meet your needs. Industry analysts recommended these digital cameras for review because they were either market leaders or representative of the technology.

Top honors for faithful color reproduction and preservation of image detail go to the Olympus D-300L and Kodak's DC120. Unfortunately, Olympus' D-300L menu system is counterintuitive, and the Kodak DC120's small and crowded LCD data screen and the camera's overall bulk make it difficult to use.

Minolta's DimageV follows closely behind the Olympus and Kodak cameras. Although its image quality rates slightly below that of our top two choices, the DimageV's compact size, excellent LCD preview screen, overall ease of use and innovative removable lens makes this camera worthy of consideration.

Ease-of-use honors go to Fuji Photo Film USA, Inc.'s Fuji DS7. Clearly, its marked rotary thumbwheels and few user-controlled options make it the quintessential "Ph.D." (Push here, Dummy) camera.

For photographers who want the ultimate in manual control, Sony Electronics, Inc.'s judicious integration of buttons, thumbwheels and lucid LCD menus in its cleverly engineered DSC-F1 strikes a good balance between ease of use and an abundance of advanced features.

Toshiba America Information Systems, Inc.'s low-cost PDR-2 produced the lowest-grade images, but be aware that it was a preproduction model that has a newly developed and still embryonic CMOS imaging system. □

*Millmum operates Data Systems Services Group, an independent networking consultancy in Croton, N.Y. Contact him at hmillman@ix.netcom.com. Cliff Travis at All Seasons Camera in Hastings-on-Hudson, N.Y. (www.allcameras.com) helped with the review.*

## Images: Bright to blah



**H**ere's a look at the best and worst digital images from the 10 reviews. Note that the images may differ slightly when translated to the four-color printing process.

To view the 10 images in a side-by-side comparison, visit Computerworld's Web site at www.computerworld.com/ guide. The images were resized to fit on the screen in pairs but not retouched or color-corrected.

**THE BEST:**
The Olympus D-300L offers the best image. Note the sharp edges of the flowers' petals plus the vibrancy and clarity of their colors.

**THE WORST:**
This image from Casio's QV-100 shows its lack of color accuracy. The digital image color is brownish-orange.

### Agfa EPhoto 307



**Comparative rating: C+**

**PROS:** It's easy to use and relatively inexpensive. The product is quicker than most similar products — it can upload images to a computer in about five seconds.

**CONS:** It's limited to 2M bytes of flash memory, moderate image quality, an inaccurate viewfinder and a hard-to-read LCD data window. The product lacks an LCD display. And the absence of a macro mode prevents a user from taking close-ups — a required feature when photographing small or detailed items.

Agfa PhotoWise processing software defaults to using the Tag Image File Format (TIFF) and must be converted to JPEG or graphics interchange format for use on the Web. A top-mounted control panel sets the flash, initiates the self-timer and displays the number of shots you have taken, plus battery condition.

### Canon PowerShot 600



**Comparative rating: B**

**PROS:** The product features good image quality. It uploads images through a parallel port cable that saves several seconds per session. It has a built-in microphone for voice annotation.

At 832 by 608, its resolution is higher than the 640-by-480 resolution that most cameras offer. Combined with an option that enables you to save the images in an uncompressed format, the higher resolution delivers a high image quality. The PowerShot 600 handles a full version of Ulead Systems' PhotoImpact.

**CONS:** It's bulky and connecting the parallel cable is awkward. Camera operation isn't intuitive, and the product lacks an LCD display. And the PowerShot 600 discharges its nickel cadmium batteries all too quickly, sometimes within just an hour of active shooting.

| Camera/company/contact | Agfa ePhoto 307 Agfa Div. of Bayer Corp. Ridgefield Park, N.J. (800) 227-2780 www.agfahome.com | Canon PowerShot 600 Canon Computer Services Costa Mesa, Calif. (800) 848-4123 www.ccsi.canon.com | Casio QV-300 Casio, Inc. Dover, N.J. (800) 962-2746 www.casio.com | Epson Photo PC 500 Epson America, Inc. Torrance, Calif. (800) 289-3776 www.epson.com | Fuji DS7 Fuji Photo Film USA, Inc. Elmsford, N.Y. (800) 378-3854 CompuServe, go fuji |
|---|---|---|---|---|---|
| Resolution | 640 by 480; 320 by 240 | 832 by 608; 640 by 480; 320 by 240 | 640 by 480; 320 by 240 | 640 by 480; 320 by 240 | 640 by 480; 320 by 240 |
| Flash | Yes | Yes | No | Yes | No |
| Focal length (35mm equivalent) | 43mm | 50mm | 47mm, 106mm | 43mm | 38mm |
| Compression format | TIFF | JPEG | CAM | JPEG | JPEG |

## Casio QV-300



**Comparative Rating: C**

**PROS:** This camera is simple to use, and its telephoto mode is a plus. The product has a 2.5-in., thin film transistor display and two fixed focus lenses. It includes a case, and the optional 2.5-in. active-matrix LCD screen is bright and easy to read. It converts image mode from topto to normal internally, thus freeing up memory.

**CONS:** It saves images in a CAM compression format, which means a user must convert the images to JPEG format. The Casio QV-300 has no flash. And moving the camera resulted in jerky LCD images, which made it difficult to frame a shot. Normal mode provides macro and telephoto options suitable for taking close-ups in dangerous places. It features short battery life; it ran down after about three hours of intermittent use or about 40 minutes of continuous use, which includes taking, deleting and viewing images.

The Casio QV-300 turned in the least impressive color accuracy of all the cameras. For example, it imbued reds and pinks with a distinct orange tone (see best/worst photos, page 73).

## Epson Photo PC 500



**Comparative Rating: B**

**PROS:** The Epson camera offers a macro mode. A sliding door hides the computer ports; other cameras rely on awkward rubber plugs to hide the ports. It comes with a carrying case.

**CONS:** The Photo PC 500 has the minimum 1M byte of default storage capacity. RAM upgrades are costly—about $250 per megabyte. The camera doesn't have an LCD screen, but that can be added later for another $199. It plugs in to the side of the camera, making it an unwieldy nine inches wide. The camera's inaccurate viewfinder makes it tough to center a subject in close-up.

With the optional viewer, the Photo PC 500 costs more than the Olympus, Minolta and Sony cameras, which are smaller and overall superior cameras.

## Fuji DS7



**Comparative Rating: B-**

**PROS:** This is a basic point-and-shoot camera. It's the easiest to use of all the cameras we tested. The controls are plainly marked thumbwheels, not buttons. The camera features three-zone focus — wide, normal and telephoto short; an under- and overexposure switch; and a clear, 1.8-in. LCD screen. The camera is lightweight and uses a SmartMedia card, a standardized removable memory module that can extend the storage to infinity.

**CONS:** The DS7 doesn't include a zoom, a flash or interchangeable lenses. Fuji plans to release a new model that includes those features.

| Kodak DC120 | Minolta DimageV | Olympus D-300L | Sony DSC-F1 | Toshiba PDR-2 |
|---|---|---|---|---|
| Eastman Kodak Co. | Minolta Corp. | Olympus America, Inc. | Sony Electronics, Inc. | Toshiba America Information |
| Rochester, N.Y. | Ramsey, N.J. | Melville, N.Y. | San Jose, Calif. | Systems, Inc., Irvine, Calif. |
| (800) 235-6325 | (201) 825-4000 | 800-622-6372 | (800) 326-9551 | (714) 583-3000 |
| www.kodak.com | www.minolta.com | www.olympus.com | www.sony.com | www.toshiba.com |

| 850 by 984 | 640 by 480 | 1024 by 768; 512 by 384 | 640 by 480 | 640 by 480 |
|---|---|---|---|---|

| Yes | Yes | Yes | Yes | No |
|---|---|---|---|---|

| 38mm-114mm, 3x zoom | 34mm-92mm, 2.7x zoom | 36mm | 35mm | 50mm |
|---|---|---|---|---|

| KDC (Kodak proprietary) | JPEG | JPEG | JPEG | JPEG |
|---|---|---|---|---|

## Kodak DC120



**Comparative Rating: B+**

**PROS:** This camera offers better-than-average image quality, in terms of color reproduction and detail. It uses a low-compression Kodak Digital Camera (KDC) image format. Optional memory expansion is available. The camera has a three-speed zoom lens.

**CONS:** The 1.6-in. LCD preview display holds images for only a short period. The hard-to-read and confusing LCD data panel provides information about setting and changes. It doesn't hold flash settings; instead, it defaults to automatic. The DC120 is bulky, like a video camera. The erase mode is complicated to use and could result in accidental erasures.

## Minolta DimageV



**Comparative Rating: A-**

**PROS:** The Minolta product offers a good balance of features. It's easy to use, and it has a detachable lens with a three-foot tether, which makes it very convenient for photographing in tight or dangerous places. The 1.8-in. active-matrix LCD is bright and legible. The DimageV has autofocus, zoom and macro modes. The viewfinder is accurate, and switching between fine and standard resolution is a one-button task. This camera uses the SmartMedia card.

**CONS:** This camera felt like the best of all, but Minolta's image quality doesn't quite equal that of the Olympus and Kodak cameras. Darn.

## Olympus D-300L



**Comparative Rating: A**

**PROS:** This camera has superior image quality and offers the highest resolution of any camera at 1024-by-768 resolution. Lower quality setting is 512-by-768 resolution. The D-300L has a macro mode, a viewfinder and a 1.8-in. color LCD preview display and works whether the camera is on or off. The optional AC adapter is a must ($50).

**CONS:** Although the D-300L is one of the more advanced cameras, its combination of buttons and menus are counterintuitive. For example, to make the camera sound a beep when a picture is snapped, you must hold the flash button when you open the lens cover. To set some of the defaults, such as the date, you must first connect the camera to a computer. But once you're accustomed to the system, it offers a wide variety of useful features.

| Camera/company/ contact | Agfa EPhoto 307 Agfa Div. of Bayer Corp. Ridgefield Park, N.J. (800) 227-2780 www.agfahome.com | Canon PowerShot 600 Canon Computer Services Costa Mesa, Calif. (800) 848-4123 www.ccsi.canon.com | Casio QV-300 Casio, Inc. Dover, N.J. (800) 962-2746 www.casio.com | Epson Photo PC 500 Epson America, Inc. Torrance, Calif. (800) 289-3776 www.epson.com | Fuji DS7 Fuji Photo Film USA, Inc. Elmsford, N.Y. (800) 378-3854 CompuServe, go fuji |
|---|---|---|---|---|---|
| List price | $299 | $699 | $899 | $499 | $549 |
| Resolution | 640 by 480; 320 by 240 | 832 by 608; 640 by 480; 320 by 240 | 640 by 480; 320 by 240 | 640 by 480; 320 by 240 | 640 by 480; 320 by 240 |
| Number of images | 36, 72 | Up to 36 | 64, 92 | 30, 60 | 30, 60 |
| Flash | Yes | Yes | No | Yes | No |
| Macro (close-up mode) | No | Yes | Yes | No | Yes |
| Focal length (35mm equivalent) | 43mm | 50mm | 47mm, 106mm | 43mm | 38mm |
| Memory type | Internal, flash | Internal, flash | Internal, flash | Internal, flash | SmartMedia card |
| Compression format | TIFF | JPEG | CAM | JPEG | JPEG |

## Casio QV-300



### Comparative Rating: C

**PROS:** It saves images in a CAM compression format, which means a user must convert the images to JPEG format. The Casio QV-300 has no flash. And moving the camera resulted in jerky LCD images, which made it difficult to frame a shot. Normal mode provides macro and telephoto options suitable for taking close-ups in dangerous places. It features short battery life; it ran down after about three hours of intermittent use or about 20 minutes of continuous use, which includes taking, deleting and viewing images.

The Casio QV-300 turned in the least impressive color accuracy of all the cameras. For example, it imbued reds and pinks with a distinct orange tone (see best/worst photos, page 73).

## Epson Photo PC 500



### Comparative Rating: B

**PROS:** The Epson camera offers a macro mode. A sliding door hides the computer ports, other cameras rely on awkward rubber plugs to hide the ports. It comes with a carrying case.

**CONS:** The Photo PC 500 has the minimum 1M byte of default storage capacity. RAM upgrades are costly — about $250 per megabyte. The camera doesn't have an LCD screen, but that can be added later for another $199. It plugs in to the side of the camera, making it an unwieldy nine inches wide. The camera's inaccurate viewfinder makes it tough to center a subject in close-ups.

With the optional viewer, the Photo PC 500 costs more than the Olympus, Minolta and Sony cameras, which are smaller and overall superior cameras

## Fuji DS7



### Comparative Rating: B-

**PROS:** This is a basic point-and-shoot camera. It's the easiest to use of all the cameras we tested. The controls are plainly marked thumbwheels, not buttons. The camera features three options: normal focus — wide, normal and telephoto shots; an under- and overexposure switch; and a clear, 1.8-in. LCD screen. The camera is lightweight and uses a SmartMedia card, a standardized removable memory module that can extend the storage to infinity.

**CONS:** The DS7 doesn't include a zoom, a flash or interchangeable lenses. Fuji plans to release a new model that includes those features.

| Kodak DC120<br>Eastman Kodak Co.<br>Rochester, N.Y.<br>(800) 235-6325<br>www.kodak.com | Minolta DimageV<br>Minolta Corp.<br>Ramsey, N.J.<br>(201) 825-4000<br>www.minolta.com | Olympus D-300L<br>Olympus America, Inc.<br>Melville, N.Y.<br>800-622-6372<br>www.olympus.com | Sony DSC-F1<br>Sony Electronics, Inc.<br>San Jose, Calif.<br>(800) 326-9551<br>www.sony.com | Toshiba PDR-2<br>Toshiba America Information<br>Systems, Inc., Irvine, Calif.<br>(714) 583-3000<br>www.toshiba.com |
|---|---|---|---|---|
| $999 | $895 | $899 | $699 | $499 |
| 850 by 984 | 640 by 480 | 1024 by 768;<br>512 by 384 | 640 by 480 | 640 by 480 |
| Up to 20 | 32 fine, 80 standard | 30, 120 | Up to 108 | 24 fine, 46 standard |
| Yes | Yes | Yes | Yes | No |
| Yes | Yes | Yes | Yes | No |
| 38mm-114mm,<br>3x zoom | 34mm-92mm,<br>2.7x zoom | 36mm | 35mm | 50mm |
| Internal, flash | SmartMedia card | Internal, flash | Internal, flash | SmartMedia card<br>(with extra card) |
| KOC<br>(Kodak proprietary) | JPEG | JPEG | JPEG | JPEG |

## Kodak DC120



### Comparative Rating: B+

**PROS:** This camera offers better-than-average image quality, in terms of color reproduction and detail. It uses a low-compression Kodak Digital Camera (KDC) image format. Optional memory expansion is available. The camera has a three-speed zoom lens.

**CONS:** The 1.6-in. LCD preview display holds images for only a short period. The hard-to-read and confusing LCD data panel provides information about setting and changes. It doesn't hold flash settings; instead, it defaults to automatic. The DC120 is bulky, like a video camera. The erase mode is complicated to use and could result in accidental erasures.

## Minolta DimageV



### Comparative Rating: A-

**PROS:** The Minolta product offers a good balance of features. It's easy to use, and it has a detachable lens with a three-foot tether, which makes it very convenient for photographing in tight or dangerous places. The 1.8-in. active-matrix LCD is bright and legible. The DimageV has autofocus, zoom and macro modes. The viewfinder is accurate, and switching between fine and standard resolution is a one-button task. This camera uses the SmartMedia card.

**CONS:** This camera felt like the best of all, but Minolta's image quality doesn't quite equal that of the Olympus and Kodak cameras. Darn.

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### Comparative Rating: A

**PROS:** This camera has superior image quality and offers the highest resolution of any camera at 1024-by-768 resolution. Lower quality setting is 512-by-768 resolution. The D-300L has a macro mode, a viewfinder and a 1.8-in. color LCD preview display and works whether the camera is on or off. The optional AC adapter is a must ($50).

**CONS:** Although the D-300L is one of the more advanced cameras, its combination of buttons and menus are counterintuitive. For example, to make the camera sound a beep when a picture is snapped, you must hold the flash button when you open the lens cover. To set some of the defaults, such as the date, you must first connect the camera to a computer. But once you're accustomed to the system, it offers a wide variety of useful features.

## Sony DSC-F1

**Comparative Rating: B**

**PROS:** The Sony product is among the most technically advanced digital cameras. Despite the number of buttons and thumbwheels, the menus are reasonably easy to learn and use. The camera itself is compact and easy to handle. The DSC-F1's rotating lens eases the framing of snapshots. It has a rechargeable lithium ion battery and offers above-average battery life. The DSC-F1 has a clear and bright 1.8-in., active-matrix LCD display/previewer. Continuous mode takes four snapshots in less than a second.

**CONS:** The batteries take about six hours to recharge, which requires users to carry a spare battery pack for field use.

## Toshiba PDR-2

**Comparative Rating: C-**

**PROS:** The PDR-2 is lightweight at only 6 ounces, and it's extremely easy to use. It features a superb online tutorial and instructions. The camera is very fast with uploads. It connects directly into a PCMCIA adapter, which means you need a computer with a PCMCIA adapter. Once we configured the PCMCIA card services, Toshiba's product provided the quickest and easiest transfer of all the cameras tested. The transfer software displays the acquired images as thumbnail images, then you double-click to load the image into the editing application. As distance to the subject increased, the quality of the image improved.

**CONS:** The camera's color accuracy is poor. And the PDR-2 contains fewer options than the other cameras. There is no LCD screen or macro/flash. A grossly inaccurate viewfinder makes it difficult to frame a subject in close-ups. □

## Film vs. digital

Keep in mind that digital cameras don't deliver the same image quality to which you might be accustomed in 35mm film cameras.

Digital cameras rely on Charge-Coupled Devices (CCD) instead of silver halide to capture the image. CCD's have an array of cells, called picture elements (pixels), that convert light into an electrical charge of varying intensity.

Despite the ongoing advances in technology, CCDs produce images that are coarser than the finer-grained images made possible by the use of chemical-based film.

Nine of the tested cameras use a CCD chip to capture the image. One new technology, used in the Toshiba PDR-2, uses a CMOS imaging system. The result is a lighter and potentially less-costly camera.

Unfortunately, the Toshiba PDR-2 cameras we used in this review turned in mediocre images. In fairness, it was a preproduction model with few options. Toshiba plans to introduce a camera with more features and a higher resolution later this year.

## Technology tips:

■ Although most cameras use proprietary flash memory modules, we recommend sticking to the new storage standard, SmartMedia cards. Adopted by Fuji, Minolta and Toshiba, these postage stamp-size, wafer-thin cards can store between 50 and 80 images. Easily removed and inserted, they can expand storage infinitely. The card can be inserted directly into a PCMCIA card reader to upload its contents onto the computer.

■ Batteries, whether new or freshly recharged, typically provide about two hours of use, so purchase an AC adapter if the camera doesn't ship with one. When the camera is connected to the computer to upload images, always use the adapter. For studio work, an adapter is de rigeur.

■ Also de rigeur is an LCD preview display, even if the camera has an optical viewfinder. The LCD makes it easier to frame a subject. Although the LCD doesn't represent the final image, it will improve the odds in your favor. The preview lets you play back and delete your images immediately. Deleting images recovers storage and makes it available for images that you want to keep.

■ If you plan to have your images appear on television or captured directly in a videocassette recorder, the Sony, Casio and Fuji cameras generate an NTSC video signal.

■ If you plan to print the images shot with your digital camera, include the cost of a digital photo printer, such as Sony's recently released QDP-M55. It costs $499.

■ If your needs extend beyond simple retouching and global hue, contrast and brightness adjustments, consider using Ulead Systems' PhotoImpact or Adobe Sys-

tems' PhotoShop. We experimented with PhotoShop's advanced editing features and created some amazing special effects and could fix flawed images. But we went through some serious hand-wringing to acquire the images directly from the camera using the Twain drivers.

■ Image quality depends on several factors: the size and quality of the CCD, camera resolution and the amount of compression it applies to the image. We used JPEG, one of the image formats used on the Web. JPEG is a "lossy" compression scheme, meaning that it allows some degree of image degradation in return for a smaller file size. Image quality is inversely proportional to the amount of compression, so we recommend using the lowest compression ratio, variously referred to as "fine" or "best," even if it necessitates purchasing additional Smart Cards or flash memory modules.

## Up to the minute:

Pentax Corp. released its latest digital camera July 28, after our review were completed.



El-Cpo
Pentax Corp.
Englewood, Colo.
www.pentax.com
Price: $915

# See new networking standards in motion.

Java Scrip...

...Script language cgi, HTML, VRML, binary<language=Java Sc...

...ote b...

...CT VLAN, Gigabit Ethernet, ATM, IPv6, SONET, IP Switching...

...VLAN, Giga...

## In Depth

# Spycatcher



**M**it was his analysis work at the National Security Agency (the U.S. intelligence group that by many accounts makes the Central Intelligence Agency look like a den of Cub Scouts) that taught Ira Winkler to behave like a chameleon. Winkler, who also served a stint as director of technology at the Carlisle, Pa.-based National Computer Security Association (NCSA), is as comfortable talking to hackers as he is talking about them.

That can explain the rapt attention Winkler received when he spoke at the recent DEF CON hackers convention in Las Vegas. It also explains why his new book, *Corporate Espionage*, sold out three times during that show. Whether explaining corporate security to Fortune 100 CEOs, learning new tricks from dropout hackers or appearing on television — he's been on *Good Morning America*, CNN, MS-NBC and a host of other programs and networks — Winkler is widely recognized as a top expert on online security.

Now an independent consultant, Winkler recently spoke with Steve Ulfelder, senior editor of *Computerworld*'s In Depth section, about the subject.

**CW: So you're just back from DEF CON. What new stuff are the hackers and crackers up to?**

**WINKLER:** Same stuff, different year. They're really after Windows NT now, but it's just a different operating system and a different year, because they mostly talk about the same things time and time again. I do think they're getting more concerned about people clamping down, and [there's] no sign of that getting better.

**CW: Better from the hackers' point of view?**

**WINKLER:** Right. And this year, there were many, many more professionals than there were hackers. They [DEF CON organizers] claim they got 1,000 attendees. If they got 1,000 people, at least 600 were what I would call professionals.

**CW:** You mean legitimate information technology professionals who were there to learn something?

**WINKLER:** Yes — professionals who were previously not associated with the hacker community, as opposed to some hackers who got a job later and still stay in touch.

**CW:** Did you pick up on resentment from the old-time hackers that these squares were moving in?

**WINKLER:** I didn't pick up on any of that. I guess I would be considered one of them. [Laughs.]

**CW:** What particular Windows NT holes were people talking about?

**WINKLER:** Password cracking There are gaping holes in that. The L0pht announced L0phtcrack.

**CW:** The L0pht?

**WINKLER:** That's a group of hackers that decided, "We don't want to get arrested for hacking, we just like to play with computers." So these people in somebody's loft have set up dozens of computers of all different types, where they can experiment in the privacy of their own setup. They've been tearing apart Windows NT just for the fun of it. And they developed L0phtcrack, which is a problem with the way the Lan Man password is stored on an NT system.

The Lan Man password is a leftover from the IBM Lan Manager, but it's built in to Windows 95 and a bunch of other client access protocols. When you send and store the password, it's stored in Lan Man format as well as the Microsoft format. The Lan Man password provides a back door to the real password.

Also, the way the password is sent over the network — even though the password itself is encrypted — if you capture the encrypted password, all you have to do [to get access] is resend the encrypted password.

**CW:** What are some of the more bone-headed security breaches you see?

**WINKLER:** So many things come to mind. it's hard to say. In one presentation test I did, somebody left a note for a temporary [worker] saying, "If you need to access the computer, here's my user ID. Here's the password. And by the way, your boss likes her mail printed up every day. Here's her user ID and password."

**CW:** One of the case studies you present in your new book is a compilation of various penetration tests you performed at the NCSA.

**WINKLER:** Right. That was a social engineering test.

**CW:** Can you give a working definition of "social engineering"?

**WINKLER:** Social engineering means any nontechnical method to get access or information about a computer. My personal definition is using or abusing interpersonal interactions to achieve a desired goal.

**CW:** What are some of the tricks that a social engineer uses? What should people watch out for?

**WINKLER:** One is espionage technique: You slowly build a person up, get them into the habit of answering questions, then get them to give you something sensitive, then slowly let them down.

So if I was a Russian spy and I was going to recruit you, I would start off introducing myself. Then I would slowly ask you questions that are totally unclassified. Then, gradually, I might ask you for a phone number. Then it's like, "Well, one phone number isn't classified." Then I might ask you for another. Then in a few weeks, I might ask you for a phone directory, and then it's like, "Well, I guess I've given him all these numbers — what harm would a phone directory be?"

**CW:** In your case study, you used humor to disarm people.

**WINKLER:** Right. What happens is, you catch people off guard, then you get them even more off guard — act like a friend, make them laugh, make them feel comfortable talking to you. In one case, a woman told me her password was Feltie. I go, "Oh, you have a cat, don't you?" She says, "Yeah." Or I'd go, "So, is that password your son's name?" It makes people feel comfortable.

A lot of people say social engineering is an art. It's not an art. It's a science. And even though hackers don't know it, they perfect their skills by practice.

**CW:** In your counterresources chapter, you discuss classifying and controlling information. Who is responsible for this task in organizations, and ideally, who should be responsible for classifying information?

**WINKLER:** Really, the person holding the information is responsible for classifying it. It should be the people who create the information who have release criteria guidelines. So people in human resources should know, "Nobody gets HR information." People in research and development should know "Hey, nobody besides the R&D team gets access to this."

**CW:** Are intranets causing any new security headaches for corporations? Is there an additional security burden on the IS department?

**WINKLER:** There is, but there doesn't have to be. The real risk that intranets present is that they allow people more access to more information easily. It's not that they didn't have the access to the information before — it's just easier to get to it.

**CW:** So if companies have the appropriate policies in place, those policies should cover intranets.

**WINKLER:** Right. And if you have an intranet, and everything's hyperlinked through on different systems around the company, you should have permissions on there. If you have sensitive data on one computer, make sure you activate the user ID and password feature that's built in to every Mosaic server.

**CW:** You also discuss monitoring activity. What are some of the things that a hacker or spy could learn from an employee's Usenet posts?

**WINKLER:** Oh, that's a mess. Where do I begin? Let's talk about the header alone first. If you're not using a proxy server, or even if you are to a certain extent, I can tell exactly which computer [a post] came from, the type of operating system you're using and the type of software that is running on that system. And if you know the operating system and the application software, you know how to exploit the system.

Of course, besides the header, if I see what people are posting, I can kind of guess what the company might be up to.

**CW:** What do you recommend to clients about employee use of Usenet groups and the World Wide Web?

**WINKLER:** I would strongly recommend that if people are to read news, they should do it on their own time from their personal accounts and be instructed not to reference their company in their personal postings.

That goes as far as your signature block in your E-mail. Don't put, "This is my CompuServe address, and this is my company-dot-com address." Because I've searched for companies and even though I might not have found any company posting I have found people who used the name of their company in the way they sign their message.

If employees do go and post, there's always a cost/benefit [analysis] that should be performed. If you don't have a lot of people posting, maybe it's not that bad. However, if you do have people that browse the Internet regularly, you're going to learn a lot about them.

**CW:** You wrote that companies place too much trust in firewalls. Why?

**WINKLER:** The biggest problems have been and always will be from insiders. What difference does a firewall make if the people you're trying to keep out are already inside? All insiders indicate that over 70% of people who steal information are insiders.

And that doesn't account for what happens if your firewall fails. What happens if somebody gets access through a modem? There are hundreds of back doors in any company. □

Uffelder's Internet address is steve_uffelder@cw.com.

# IT Careers

# DESPERATE TIMES, DESPERATE MEASURES

**LOSING OUT TO OUTSOURCERS, corporate IS managers are hiring any Oracle talent they can find, even knowing that they won't be staying long**

BY LESLIE GOFF

T HE FINAL STRAW for Gary DuPuis, when he desperately needed in-house Oracle expertise, was the job-hopper. In a moment of sheer exasperation, DuPuis had hired an Oracle Corp. database administrator whose resume revealed a penchant for changing employers at six-month intervals. But in DuPuis' prolonged search to fill the position — critical because of a major Oracle financials implementation — he grew frustrated by the outrageous demands of the talent he had uncovered.

"One guy wanted to telecommute from his Florida home in winter and his Rochester, N.Y., home in summer," says the VAR director at Vector Healthsystems, Inc., a Providence, R.I.-based provider of medical and business services to the health care industry.

After advertising in various New England newspapers and hiring a headhunter to conduct a national search, DuPuis' decision came down to two candidates: the telecommuter and a candidate who, for the right money, was willing to defect to Vector after only three months in her then-current job.

"She had done that several times before, and ordinarily we would not have hired someone like that," DuPuis says. "But we did, and a few months later, she did the same thing to us."

Although they aren't plentiful, Oracle professionals are easy enough to find, say information systems recruiters, but they're seldom willing to take permanent positions at IS organizations.

The perception by many Oracle pros is that a full-time database administration position can quickly become routine, with salaries and benefits leveling off in the high five figures. But Oracle contractors have upward mobility. They prefer to work in different industries, on new challenges and for ever-growing sums — as much as $180,000 annually for an experienced database administrator. That forces IS managers to rely on consulting services, even when they would prefer full-time staffers.

Some employers have been known to offer $5,000 signing bonuses, three weeks of paid vacation, relocation expenses, immigration sponsorship for foreign nationals and flexible work arrangements. But many Oracle pros still opt to work for consulting agencies.

"The talent out there is well aware that the demand exceeds the supply, and they don't want to work for a company long term and make $70,000 to $80,000 a year max," says Stephen Waldman, vice president and chief operating officer at Fourth Tech Technologies, Inc., an Oracle professional services agency in Cherry Hill, N.J. "As contractors, they can get $50 to $100 an hour, and they're probably more secure as permanent employees of contracting firms. It's their own market savvy that's driving this."

Amarendra Nettem, a consultant at Whitman Hart in Chicago, says he wouldn't be interested in a permanent job at an IS organization. At Whitman Hart, he's had four consecutive assignments in 14 months at financial services, telecommunications and manufacturing companies. Nettem is now working at Bell & Howell Co., acting as Oracle database administrator and applications developer. Whitman Hart regularly sends him for Oracle training and recently assisted him in gaining Oracle7 database administrator certification.

Yet even consulting firms face the supply-and-demand problem. Waldman, whose clients include Merck & Co., Lucent Technologies, Inc. and BellSouth Corp., has $5 to 90 Oracle consultants and plans to double his head count over the next year.

The market-driven reward consulting companies provides an opportunity for full-time pros at IS organizations to push for Oracle training on company time and budgets. For example, DuPuis was paid for another round of external recruiting after his new database administrator left for another position. Instead, he picked three local IS staff members, who each averaged 10 years at the company, and sent them for the rotating battery of Oracle database administrator and applications developer training. □

*Goff is a freelance writer in New York.*

## SKILLS REQUIRED

Oracle expertise alone is sufficient for landing a job, but employers demand real experience, not exposure. Having worked in an Oracle shop isn't enough; tenure as an Oracle database administrator or developer in a high-profile company makes you a shoe-in.

Proven working knowledge of the Oracle Developers Tool Kit and Oracle financials are the most sought-after skills. Business communication skills and a demonstrated ability to work closely with end users also are essential.

## BONUS SKILLS AND CREDENTIALS
- Unix on Sun Microsystems, Inc. and Hewlett-Packard Co. platforms
- C++
- PeopleSoft, Inc.
- SAP AG
- Functional experience in specific application areas such as financials and human resources
- Industry-specific experience related to the job at hand
- Oracle7 database administrator certification
- Formal Oracle training

## AVERAGE SALARIES
- Full-time, entry level: $40,000 to $50,000
- Staff level with several years of experience: $70,000 to $85,000
- Advanced experience: $90,000 to $120,000
- Consulting fees: $50 to $100 per hour, depending on skills and experience

## PERKS
- Several weeks of paid vacation
- Relocation expenses
- Signing bonuses averaging $3,000 to $5,000, and reportedly as high as $15,000
- Telecommuting
- Alternate schedules and other flexible work arrangements
- Immigration sponsorship

# P L A Y    S Q U E E Z E

## By Jill Vitiello

IT'S 10 P.M. Do you know where your IS professionals are?

If they work at Barnett Banks, Inc. in Jacksonville, Fla., and if a normal day ends at the office. Not because they're cutting over to a new system and are working around the clock, but because those are the hours they prefer.

Information systems professionals and other employees at Barnett can vary work hours, compress their workweek into four days or telecommute. They also can bring their preschoolers to on-site child care centers at several Barnett facilities or enroll their school-age children in Barnett's on-site public school, affiliated with the county school system.

"We pride ourselves on the work environment here," says Patrick Chaffin, a human resources partner at Barnett. "We use it as a lever to attract and retain employees." Barnett's IS turnover rate is 5% annually.

In the white-hot national IS job market, attracting top talent takes not only competitive compensation, but also the best benefits. Employers such as Barnett, Chevron Corp., Hewlett-Packard Co. and Bechtel Group, Inc. give their employees an option called compressed workweeks — squeezing 40 hours on the job into a four-day week. The option rewards employees' efforts with time off for working longer days.

### HIRING ONE-UPMANSHIP

"It's helped establish Bechtel's reputation as an employer of choice."

Tim Green, staffing manager at Bechtel Systems and Infrastructure, Inc. in San Francisco, says the company views the compressed workweek as a way to comply with state regulations, recruit the best employees and provide nonstop service.

"The people coming into the workforce today are seeking balance and quality of life," Green says. "Those are the issues that are important to them. They are attracted to our flexible work schedules. Most people take care of their personal business on their regular workday off, which saves the company money because employees take less sick leave.

"Bechtel is a project- and customer-driven organization, though," Green

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**Nothing makes the workweek better than a long weekend — EVERY WEEK. Some leading companies are using the "COMPRESSED WORKWEEK" as a recruiting and retention tool**

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says that at one site, a major customer elected to Bechtel's compressed workweek benefit, saying it interfered with service levels. Bechtel withdrew the benefit at that site but offered those employees flexible-time instead, which worked better with that customer's culture and expectations.

"[Bechtel has] IT engineers working all the time, 24 hours a day, in the U.S., India, the U.K., Singapore, Latin America and other locations," says Jeff Rouser, manager of information technology at the company. Approximately 85% of Bechtel's 80 IS employees work a "9-8-0 schedule," which requires employees to log nine hours Monday through Thursday and eight hours every other Friday, with alternate Fridays off.

### EVERY WEEK'S A HOLIDAY

"People like their three-day weekends. They get a little honeymoon and come back to work refreshed."

At the Optoelectronics division of HP in San Jose, Calif., Bill Beecher says the compressed workweek gives businesses an international edge as well. For example, his team of 10 engineers and five technicians supports business units in Southeast Asia. They conduct frequent teleconferences during evening hours.

Previously, employees resented the extra hours spent in the office to make the calls, says Beecher, the product manufacturing manager. Now they can be

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scheduled during elongated business hours. They work the "4-10" — four 10-hour days with a three-day weekend every week.

There are other benefits. Beecher's team handles electronic mail correspondence during early morning and late evening hours when there are fewer interruptions. Some have cut long commutes by more than 30 minutes to driving to and from work during off-peak hours.

"We provide service to a number of groups, and we have to be sensitive to their needs," Beecher says. Before they began working compressed weeks, the team canvassed users, got their feedback and assured them of maintaining service standards. They documented best practices and created a process for cross-training and providing backup support.

### GOOD AS GOLD

"The 4-10 helps us retain our employees in the face of higher salaries being offered by our competitors."

Of Chevron Corp.'s 40,000 employees worldwide, approximately 8,500 work compressed workweeks, says Sue Osborne, the company's work-family manager. "Offering compressed weeks gives big users of the flexible schedules," Osborne says. Knowledge workers generally can implement scheduling flexibility successfully because of the nature of their tasks. Chevron's biannual employee survey consistently shows that the compressed workweek benefit scores high with employees.

The company also likes it. Since offering compressed workweeks, employee sick leave has decreased. Chevron allows employees either the 9-8-0 or 4-10 and asks them to select the schedule they prefer and stick to it to ensure proper coverage of the office and workload. IS hiring managers consider the benefit an important staffing tool.

Nancy Wallen, a business analyst in the Core Advanced Financial Information Systems department at Chevron in San Ramon, Calif., says the 4-10 has improved her home life. She uses the extra day to attend to personal business, household duties and errands, preserving the weekend for activities with her husband and two children. Now that she has only four days in the office, she plans them for maximum productivity □

*Vitiello is a freelance writer in East Brunswick, N.J.*

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## SQUEEZED OUT

Like all good things, compressed workweeks require some trade-offs:

- **OVERTIME** — Most IS pros are exempt from overtime, so if you clock more than 40 hours in a week, don't expect additional compensation.

- **VACATION DAYS** — At many organizations, employees earn vacation days based on the number of days worked in the office. To be eligible for a 4-10 or 9-8-0 schedule, you may have to sacrifice a few vacation or personal days.

- **FLEXIBLE TIME AND TELECOMMUTING OPTIONS** — Companies that offer compressed workweeks generally don't offer flexible start and end times or telecommuting to their employees.

## RESOURCES

Even companies that offer 4-10 and 9-8-0 schedules sometimes present a business case for implementing the benefit at their workgroup. For more information on compressed workweeks and other flexible scheduling arrangements, contact these sources:

**NEW WAYS TO WORK**
San Francisco
www.nww.org

**THE CONFERENCE BOARD**
New York
E-mail requests for information
to info@conference-board.org

**FAMILIES AND WORK INSTITUTE**
New York
www.familiesandwork.org

# Mississippi State

## LAN SYSTEMS PROGRAMMER

This position will be involved in installing and maintaining software and hardware for PC and Macintosh server and workstations in a networked environment.

**Minimum Acceptable Qualifications**

- A Baccalaureate degree in Computer Science or a related field.
- Programming experience on PC and/or Macintosh platforms in a high-level language.
- Experience with installation and support of PC and/or Macintosh applications software.
- Local Area Network experience.
- Well-developed interpersonal communication skills.

**Additional Desirable Qualifications**

- Installation and repair experience with Novell Netware.
- Experience with Ethernet.
- Experience with TCP/IP and the Internet.
- Low-level programming experience on PC and/or Macintosh platforms.
- Experience with Microsoft Windows (3.x, 95, and NT).
- Experience with end-user software and hardware support.

## SENIOR LAN SYSTEMS PROGRAMMER

This position will be involved in installing and maintaining software and hardware for PC and Macintosh server and workstations in a networked environment.

**Minimum Acceptable Qualifications**

- A Baccalaureate degree in Computer Science or a related field.
- Programming experience on PC and/or Macintosh platforms in a high-level language.
- Three years experience with installation and support of PC and/or Macintosh workstation hardware and software.
- Two years experience installing and supporting Local Area Networks.
- Well-developed interpersonal communication skills.

**Additional Desirable Qualifications**

- Installation and administration experience with Novell Netware v3.x.
- Installation and administration experience with Novell Netware v4.x and NDS.
- Experience with Ethernet.
- Low-level programming experience on PC and/or Macintosh platforms.
- Experience with Microsoft Windows (3.x, 95, and NT).
- Experience with end-user software and hardware support.
- Experience with network protocol analysis such as Network General's Sniffer.

## LAN SYSTEMS ANALYST

This position will be involved in installation, maintenance, and support of software and hardware for PC and Macintosh, server and workstations in a networked environment, as well as management and coordination of large-scale computing and networking projects assigned.

**Minimum Acceptable Qualifications**

- A Baccalaureate degree in Computer Science or a related field.
- Proficiency in one or more high-level programming languages.
- Low-level programming experience on PC and/or Macintosh platforms.
- Installation and administration experience with Novell Netware v3.x and v4.x.
- Experience with Ethernet.
- Experience with TCP/IP.
- Experience with network protocol analysis/instrumentation.
- Experience with Microsoft Windows (3.x and 95).
- Installation and support.
- Five years experience with installation and support of PC and/or Macintosh workstation hardware and software.
- Two years experience installing and supporting Novell Netware-based LANs.
- Novell CNA or CNE certification.
- Well-developed interpersonal communication skills.

**Additional Desirable Qualifications**

- Experience with Microsoft Windows NT.
- Experience with network protocol analyzers such as Network General's Sniffer.
- Experience with client/server computing environments.
- Experience with server-based installation and support of PC and Macintosh software.
- Experience with advanced networking such as Fast Ethernet and Asynchronous Transfer Mode (ATM).

The primary responsibilities of these positions are to provide systems and network support for PC and Macintosh LAN systems and client/server environments on the MSU campus network. Tenure to be supported at MISSISSIPPI STATE UNIVERSITY on part of a campus-wide, fiber optic, ATM/ethernet network used in academic, research and administrative disciplines within the University. Salary commensurate with qualifications and experience.

Send resume, salary history/requirements, names and telephone numbers of three professional references to Mike Rackley, Director of Systems & Networks, Mississippi State University, P.O. Box 9697, Mississippi State, MS 39762.

MISSISSIPPI STATE UNIVERSITY IS AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER.

# IT CAREERS

# Marketplace
## NEW & NOTABLE

## Transtech Launches admiNTeam™
### A National Windows NT Network Administration Services Group

Transtech, Inc. has launched its focused WIN-DOWS NT System and Network Administration Services Team nationwide. The "admiNTeam™" is positioned to offer the best and broadest range of NT services nationwide. Transtech is one of the only organizations worldwide with such a unique range of NT-centric services. The group is focused on providing NT System and Network Management Services ranging from long-term onsite NT Administration Contract services to offsite telephone support. A Microsoft Solution Provider for the last three years, Transtech already has in place strong BackOffice expertise and leveraged Microsoft Certified Windows NT experts. The admiNTeam™ will have a big jumpstart from this existing depth of NT expertise. The admiNTeam™ can help NT sites migrate or integrate with Windows NT Server, setup and maintain NT based Web Servers, Microsoft Exchange Servers or NT Application Servers. "We can come in and manage your NT environment while providing a complete knowledge transfer to your staff."

The range of services include a retainer-based service contract which guarantees a specific response time. For example, a client who has a single NT Server with

30 users could opt for a 300 hour annual retainer and have a guaranteed 4-hour response time to any service calls. "On the other hand, most of our Fortune 2000 clients need full-time onsite support and we have the best team of NT experts in the business who are great at that," says Brown. The Transtech admiNTeam™ can be reached at 1.888.NT.ADMIN (682-3646) ext. 239 or at ntadmin@trans-tech.com. Further information about Transtech can be obtained by visiting our web site: www.trans-tech.com.

## Heroix Unveils New Rule Wizard in RoboMon NT V6.2

RoboMon NT's new Rule Wizard provides a fully integrated, graphical environment for easy customization of RoboMon Rules which monitor and solve site-specific problems. RoboMon monitors Windows NT based on rules that determine what conditions to look for, and what notification or corrective actions to take as problems are detected. The Rule Wizard puts the building blocks that comprise rules — schedules, selections, conditions and actions — in an easy-to-use, graphical form.

RoboMon NT software automates Windows NT systems administration by monitoring and solving many problems associated with Microsoft's Windows NT Server, Exchange Server, Internet Information Server, SQL Server, and Systems Management Server. RoboMon NT V6.2 pages personnel through an integrated paging system, and its Email notification action now supports Lotus' CC: Mail and SMTP mail, as well as Microsoft Exchange. RoboMon NT's native event display pro-

vides centralized, multi-platform monitoring from any point in the network, encompassing Windows NT, AIX, Digital UNIX, HP-UX, Solaris, SunOS, and OpenVMS. RoboMon NT is available for Intel and Alpha, with prices ranging from $200-$5,000 (prices subject to change). For more information contact Notario, Marketing Manager, Heroix Corporation, 800-229-6500 x232,

pr@heroix.com,
http://www.RoboMon.com

## Out-of-Box Experience

It's a philosophy — just plug in your GATEWAY PC and go to work. PCs custom built to your specifications, shipped directly from the manufacturer help increase your end-users' productivity. That's what we mean by enhancing your "out-of-box" experience. It's part of Gateway 2000 Major Accounts, Inc.'s Custom Integration Services (CIS).

With CIS, a host of hardware and software applications can be custom built into your PCs, even components other than Gateway's standard offering. You can get that hardware or software pre-tested and shipped directly to your door — no third parties, no wasting your technician's time installing software or making alterations after your PCs are built. Plus, you benefit from toll-free, dedicated technical support and customized service options.

Gateway products deliver Value of Ownership by combining maximized benefits and reduced costs over the life cycle of your PCs. "Value" is much more than the cost of the product; it's the right balance of quality, performance, manageability, service *and* life cycle cost.

Call our Gateway Major Accounts representatives today and let them elevate *your* out-of-box experience.

# The Week in Stocks

## Gainers          Losers

### PERCENT

| Radius Inc. | 52.9 | | Learning Co. (The) | -47.7 |
| Intelligent Systems | 37.5 | | Digital Recorders Corp. | -38.1 |
| Intelligroup Electronics | 31.9 | | Group I Inc. | -34.0 |
| Western Digital Corp. | 26.9 | | Sanctuary Woods | -26.9 |
| Cheyenne Corp. | 24.4 | | Quantum Corp. | -25.1 |
| MTI Technology Corp.(H) | 23.7 | | Pinnacle Micro Inc. | -22.4 |
| Pacific Systems Inc. | 20.8 | | Borland Int'l | -21.4 |
| Quantum Corp.(H) | 19.9 | | Xircom Inc. | -21.1 |

### DOLLAR

| Western Digital Corp.(H) | +7.75 | | Electronic Data Systems Corp. | -7.44 |
| Apple Computer Inc. | 6.44 | | Stewart Enterprises | 7.19 |
| Micron Technology(H) | 5.13 | | Newbridge Networks Corp.(H) | -7.00 |
| BMC | 4.94 | | HBO & Company | -5.50 |
| Intel Corp. | 4.81 | | Ceridian Corp. | -5.19 |
| Hewlett-Packard | 4.63 | | Sterling Commerce | -4.88 |
| Intuit Inc.(H) | 4.44 | | Applied Communications | -3.44 |
| Sun Microsystems Inc.(H) | 3.88 | | Xircom Inc. | -3.25 |

## INDUSTRY ALMANAC

### IPO pace picks up steam

Like Ravel's Bolero, this year's market for high-tech initial public offerings (IPO) started quietly and slowly but has picked up the pace and grabbed the attention of investors during the past two months.

It would be hard for 1997 to keep up with last year's record pace, when 170 companies went public and raised more than $9 billion. Last year, between January and the end of July, 125 companies had hit the exchanges. By contrast, during the same period this year, only 69 companies have begun trading publicly. But nearly half of these 69 IPOs were launched in June and July.

There was a backlash against last year's IPO free-for-all, says Bill Marbach, managing editor of the venture finance group at Technologic Partners in New York. "Last year, there was a huge rush of enthusiasm for almost anything high-tech," and some companies were going public with little more than a business plan, he says. "This year, for year a lot more caution. Now companies are doing it the old-fashioned way — by building a solid customer base showing solid long-term success before going public."

Of the 19 IPOs in January and February, only two have been especially strong: Atlanta-based Radiant Systems, Inc. (Nasdaq: RADS) and Ciena Corp. (Nasdaq: CIEN) in Linthicum, Md. Both companies fit Marbach's model of showing long-term success and building a roster of customers before going public.

Radiant, which provides ordering and sales systems, has seen its stock rise 142% since its Feb. 12 opening price of $9.50 per share. Ciena develops bandwidth-boosting technology that uses wavelength division multiplexing and has seen its stock price rise 135% since its Feb. 7 IPO.

Other notable successful IPOs include chip-to-chip interface developer Rambus, Inc. (Nasdaq: RMBS) and online bookseller Amazon.com, Inc. (Nasdaq:AMZN) in May, and consultant/integrator Aris Corp. (Nasdaq:ARSC) and client/server software developer Great Plains Software, Inc. (Nasdaq:GPSI) in June.

— Stewart Deck

## A SAMPLING OF 1997'S HIGH-TECH IPOs

| | IPO date | Opening price | Aug. 6 price |
|---|---|---|---|
| Radiant Systems | Feb. 12 | $9.50 | $23 |
| BEA Systems | April 10 | $6 | $24.125 |
| Ciena | May 13 | $12 | $67 |
| Peapod | June 11 | $16 | $11.25 |

# The Week in Stocks

## A SAMPLING OF 1997'S HIGH-TECH IPOs

| | IPO date | Opening price | Aug. 6 price |
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| BEA Systems | April 10 | $6 | $24.125 |
| Rambus | May 13 | $12 | $67 |
| Peapod | June 11 | | $11.25 |

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# Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

# Loaded browsers

**CONTINUED FROM COVER 1**

seriously considering unbundling the browser component of its Communicator groupware. But that hasn't happened yet, and in the meantime, users have been left with a standard version of 50M bytes.

Disk space is cheap, and most users have plenty, so that isn't the main concern for medium-size to large companies.

The more critical issues for those users are new browser functionality that duplicates capabilities already in their existing software, the need for more intensive user training, adequate RAM to run multiple applications and lengthy download times for remote users.

"I use a lot of applications on my computer at one time, and if you've got some application that takes up 15% or 20% of your memory, it gets tiresome," said David Sims, technical manager of information technology at Schaumberger Ltd. in Sugar Land, Texas. "It takes a little longer to load and unload, and it uses memory that would be useful for other things."

## BACK TO BASICS

One clear indication that customers want lean and simple clients is that when given the choice, some are stripping their Internet clients near bare.

For example, Internet Explorer 4.0 weighs in at 14M bytes for the typical version. But the version that Arthur Andersen & Co. gives its 55,000 users is just 3M bytes.

And John Haner, an Andersen partner, said he can probably strip Internet Explorer 4.11 to 1.4M bytes using the product's Administration Kit.

"I've already put my users through a whole new [Microsoft] Office, a whole new operating system and a new version of Notes," Haner said. "It's time to let them settle down a little."

Wheat First Butcher Singer, Inc., a nationwide financial services firm in Richmond, Va., gives its end users two of those tools can't extract the browser component.

The minimum Communicator installation consists of browser, mail, collaboration and Web authoring pieces. Next week, the Netscape push component will ship, but that won't be part of the minimum version, a company product manager said.

There are unconfirmed re-



| DOWN MEMORY LANE | | |
| --- | --- | --- |
| Browser or operating system | Disk space required | Compressed download |
| **Internet Explorer 4.0 (NT)** | | |
| Minimal Installation | 43M bytes | 14M bytes |
| Standard Installation | 52M bytes | 16M bytes |
| Full Installation | 59M bytes | 23M bytes |
| **Netscape Communicator 4.02** | | |
| Minimal Installation | 30M bytes | 10M bytes |
| Standard Installation | 34M bytes | 13M bytes |
| Full Edition | 40M bytes | 16M bytes |
| **Windows 95 Workstation** | | |
| Typical Installation | 55M bytes | |
| Full Installation | 74M bytes | |
| **Windows NT Workstation** | | |
| Full Installation | 110M bytes | |
| **Windows NT Server** | | |
| Full Installation | 125M bytes | |

Source: Microsoft Corp., Redmond, Wash.; Netscape Communications Corp., Mountain View, Calif.

ports about a Navigator/Netscape component being separated out, but the company wouldn't confirm that information.

"The browser now is used as a marketing tool, a penetration tool," said Matt Goldberg, chief architect at US West, Inc. in Denver. "I understand it, but I do not accept it . . . I need a browser. I don't want to be forced to redefine my desktop through the browser's eye."

US West uses Notes for groupware and Netscape's Navigator as its browser. Goldberg said Netscape told him it would unbundle Communicator.

## MORE THAN HE NEEDS

In the meantime, Goldberg said he is left with extra functionality that he doesn't need. "Let it cost separately; I don't want it to come through the back door," he said.

That isn't to say every company shares that view. San Jose, Calif.-based Xilinx, Inc., for example, wants to use Netscape's browser, messaging and calendar components.

"Everything is available in one look and feel, and it's a lot easier to train users on how to get things done," said Sandy Sully, chief information officer at Xilinx.

But others have concerns. National Semiconductor Corp.'s Glenn Newell, a senior engineering manager for intranet technology, pointed to slow download time for remote users to install the client. □

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# UPS strike strains rivals' IT systems

**CONTINUED FROM COVER 1**

Sachs & Co. in New York.

All of UPS's competitors put together "aren't able to absorb all of the business that UPS had," said a spokeswoman at Emery in Redwood City, Calif.

FedEx is giving it its best shot.

The Memphis company upgraded two of its file transfer protocol servers from T1 to T3 connections, giving FedEx 28 times more capacity to handle the influx of World Wide Web site visitors tracking shipments and placing orders online, said Susan Goeldner, manager of Internet technologies at FedEx.

Goeldner said FedEx has experienced a 30% jump in Web-based shipping orders since the strike began. One day last week, Web site hits nearly doubled, from an average day's traffic of 150,000 hits to 280,000.

But FedEx officials said their systems can do only so much to alleviate the 40% bulge in shipments since the strike. The systems for sorting packages and reading bar codes are less of an issue than the shortage of airplanes, trucks and people needed to handle the increased volumes, a FedEx spokeswoman said.

"We are maxed out," she said.

FedEx isn't the only carrier turning away customers. RPS, Inc., a Pittsburgh business-to-business carrier, began turning away new customers July 1 in anticipation of the UPS strike.

"With an automated [package-processing system], you run against the capacity of the processors, not to mention time constraints," said Brian Johnson, vice president of marketing and strategic planning. "It's like a manufacturing plant — you can only make so many widgets an hour."

RPS's volume is up 20% since July 1 from the 300,000 customers it shares with UPS, putting a strain on its IBM AS/400 machines. The AS/400s track data on 1.3 million packages up from the 1.1 million on a typical day.

Emery, whose shipping counts have tripled since the strike, runs a three-tier client/

server network that connects the handheld radio frequency-based scanners that read package bar codes to an IBM mainframe through a Sun Microsystems, Inc. server, said Paul Klepacz, director of information technology at the company.

The problem for FedEx and other carriers goes well beyond systems capacity. Players in the $65 billion shipping market normally operate on razor-thin profit margins, and the costs of leasing additional aircraft and

**Do-it-yourself delivery**

To help deal with the 70% increase in Express Mail traffic, the U.S. Postal Service has experienced since the UPS strike began, the service is relying on businesses both with its largest customers to handle their own package deliveries.

One of the things the Postal Service is doing to present customers is turning to Internet-based delivery. Instead of picking up packages to drop off at a post office, customers can now schedule pickups when goods are delivered with packages up to 70 pounds.

For example, it may ask a customer to track packages from New York to Denver so they can get to Los Angeles faster.

—Thomas Hoffman

trucks to support extra traffic during the UPS strike don't guarantee a profitable return.

Emery, for example, added nine nighttime flights and about 100 temporary workers to its main sorting center in Dayton, Ohio, to handle the excess UPS traffic. And Airborne Express in Seattle isn't accepting any packages normally tendered to UPS.

Still, the strike could result in long-term gains for UPS's competitors. If the strike continues into next month, UPS could lose as much as 10% of its customer base to FedEx and other carriers, said Douglas Rockel, an analyst at Furman-Selz, Inc. in New York. □



"If you've got some application [on your computer] that takes up 15% or 20% of your memory, it gets tiresome."

## COMMENTARY

# Now it's HTML vs. Java
## David Coursey

**M**icrosoft is out beating the drums this month, touting the virtue of using HTML instead of Java as a cross-platform application tool.

Yes, *that* HTML— although Redmond concedes that advances such as dynamic HTML, scripting and cascading style sheets make this an attractive option.

Here's the pitch: Java compatibility is a myth and always will be, Microsoft says. The company cites its own 18-month delay in delivering Windows 95 as an example of how compatibility can be an elusive goal. Referring to recent published reports that suggest Java's promise of "write once, read everywhere" is only about 40% true, Microsoft says "bug-for-bug" compatibility won't exist until Java settles down a bit — which may be never.

This is a real client/server play for Microsoft, using HTML Web pages to pull information from networked and local databases. Imagine Microsoft, which made its money bringing intelligence closer to the user, now pushing it back to the server. In an all-HTML world, a superthin client would be a sort of network

computer device with a Web browser in readonly memory. Sure, plug-ins add weight. But the ability of HTML to display on whatever browser comes calling has Microsoft touting HTML as its new cross-platform, formsbuilding language.

Promising a truce in the battle of dynamic HTML with Netscape, Microsoft has the advantage of promoting HTML as a true Internet standard — complete with a standards body — as opposed to whatever status Java has attained in its quest to become an industry standard.

I haven't learned the official response from Java Central, but I imagine they're laughing. That's what I'd do. Java, after all, is a real language. HTML doesn't come close. Even Microsoft says Java is

an excellent language for corporate developers, presumably to connect to their shiny new HTML-built user interfaces. Given this, JavaSoft probably won't take the threat seriously, which would be a mistake.

A developer friend, a guy I'll call Mr. Java to protect him from a torrent of electronic mail, warns that while HTML can't match Java feature for feature, it will work just fine in many applications. He believes that will let JavaSoft and Microsoft claim victory in cross-platform client development, at least until real developers vote by writing real code for their users.

One thing I'll say for HTML: I know how to use it, and I've never been a very successful programmer of anything, right down to my VCR. Given the right tools to attach HTML pages to databases and commercial applications, nonprogrammers like me could build reasonably powerful intranet applications pretty much on our own. Java doesn't do this for

me now and probably won't for several years, if ever.

Will Microsoft be successful in this effort to marginalize Java? That's hard to say, but if effort counts for anything, it's a shoe-in. Netscape hasn't been around much lately, and JavaSoft pretends to criticize simply don't exist.

Microsoft's positioning of HTML against Java is an interesting play. Most people thought Microsoft would wrest control of Java from JavaSoft. Now, having almost succeeded, Microsoft seems to be stepping back and saying, "Java doesn't really matter so much after all."

It does matter, of course. But it matters because Java can hurt Microsoft but really can't *help* Microsoft much. Microsoft doesn't need Java — except perhaps as a programming language — nearly as much as Sun needs Java to prevail.

In most battles, that means Sun — the better-motivated contestant — would win. But not with Microsoft, which fights every battle as though it was the war. □

*Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.*

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# Beyond users: why one project failed
## Frank Hayes

**R**eality came down hard on Oregon's Driver and Motor Vehicle Services department last year. DMV manager Jane Cease's head rolled after a $48 million re-engineering project ballooned to $123 million and slipped by three years.

She isn't the only one who got the chop. DMR Consulting Group in Montreal was lead consultant for the now-dead project. Oregon's transportation department last week was mulling whether to sue DMR or simply ask for some of its money back.

Blown budget, blasted schedule, rolling heads, lawsuits — those are the painful realities of a project that died. But the realities that hit the DMV hardest were an unpredictable future and unhappy customers.

Not unhappy users — unhappy *customers*, the people who walk through the doors of DMV offices.

The project sounded good back in 1990. Instead of shuffling legacy applications depending on whether customers wanted to renew a driver's license, transfer a title or register a car, DMV clerks

would access more than 100 different transactions through a single integrated system. And customers would be able to handle all their DMV business in one shot. No more standing in three different lines, repeating the same information and explanations. What could be wrong with that?

When the system went live in April 1995, they found out.

Lines. Long, slow lines. Lines of customers who were first annoyed, then irritated, then angry.

The lines grew because just the simplest transactions, now handled everything. This meant that while one customer was getting the soup-to-nuts treatment, the next guy in line was getting steamed by the wait.

Angry DMV customers deluged their legislators with complaints about the state agency. That's when lawmakers discovered another problem: This big, integrated, re-engineered system was built for a different future than the Legislature had in mind.

Lawmakers wanted eventually to spin off some DMV functions to private businesses. But that would require a more flexible system. And it would take plenty of work — and money — to refit the system for the new political realities and privatization.

Spiking the re-engineering project, with its budget and schedule problems, was easy. Today, the DMV is reworking its legacy systems piecemeal, with smaller projects that are easier to manage.

But the new projects are also focusing on keeping privatization options open — and keeping customer lines short.

What went wrong? The new system was designed to meet the needs of DMV

users. DMV manager Cease thought so. The DMR consultants still think so.

And meeting users' needs is important, but it's not enough.

Today, systems must be designed for the needs of customers, not just users. It's customers, after all, who decide whether a project — or a business — will succeed.

And new systems also must accommodate business conditions that might change radically within a few years. It doesn't really matter whether that's because of shifting political tides, corporate mergers or changes in the market — it still means systems have to be more flexible than ever before.

That's a lot to demand of systems developers. And maybe it isn't reasonable or fair to expect developers to predict years in advance how business will change or to know customers' needs better than the users who help specify the systems.

But then IS shops don't develop systems in a vacuum. We have to do it here in reality. □

*Hayes is Computerworld's staff columnist. His Internet address is frank_hayes @cw.com.*

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## The Back Page

Dispatches & images from the fringes of the electronic frontier

### Good question

Now that Apple's Steve Jobs is awash in gratitude to Microsoft, somebody ought to tell Apple's ad agency. It ran ads that bashed Windows on Boston radio stations during the Macworld show held there last week. The ads first mentioned that the Macintosh can run Windows applications as well as the smaller base of Macintosh software. Then it asked, "But why would anyone want to?"

### They've got the Power

Power Computing's booth was a hot spot at Macworld last week, attracting the dreadlocked, leather-clad, pierced, baby-clutching, Mac-loving masses. The clone maker's contest turned a particularly lively group that enjoyed being challenged by Macintosh-related brain teasers such as "What was the first Mac with a fan?" (Stuck on the answer? It's the Mac IIX.)

### From football to E-commerce

Just think "electronic commerce" and former NFL superstar Lynn Swann pops in to your head, right? No? Well it did at San Diego-based 1Link Internet Services. The electronic commerce service company hired the former Pittsburgh Steelers wide receiver and Super Bowl X star to serve on the start-up's board of directors.

### So, what are you selling again?

In a briefing with Computerworld editors last week, a Microsoft executive was trying to explain how its Common Object Model works. He noted that it carries information — kind of like air carries radio waves. "So, you're selling air?" an editor inquired. "Yes, air . . . No, no, not air." Hmmmmm. What will they think of next?

### You've come a long way, Barbie

The information age has finally caught up with Barbie dolls. Toy maker Mattel in November will release a talking Barbie that has a computer that sits atop a pink desk. Previous versions of the doll said things such as, "Math class is hard." But for $50, the Talk With Me Barbie Doll will tell you, "I'm ready to sit at my computer." Sure, but can she install Windows NT?

### . . . but do you want this NT beta?

Microsoft will continue its tradition of handing out free beta software at its Professional Developers Conference late next month in San Diego. This time, sources say, the Redmond, Wash., software giant will offer attendees free copies of the long-awaited Windows NT 5.0 beta, which features the Active Directory.

### Wake up your desktop

Intel this week will announce it is shipping 10/100M bit/sec. network adapter cards that will let IS managers remotely "wake up" and service PCs over a network after hours. IBM introduced Wake-on-LAN-enabled systems early last year.

### Aliens? Nah, just network managers

Before this summer, MIB stood for management information base — a database describing managed objects that can be accessed via network management protocols. But developers at NetScout Systems in Chelmsford, Mass., discovered otherwise during a trademark search for their Application Response Time MIB, to be announced this week. Columbia Pictures now holds the rights to MIB as a logo for the hit film Men In Black.

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## THE END OF PASSWORDS?

Biometric security for user authentication may break out of the government niche within a few years, analysts say. National Registry in Tempe, Fla., for instance, is conducting pilot tests of its fingertip-scanning system at two hospitals and a credit union. End users type a user identification and then place their index finger on the scanner to gain access to Windows or Windows NT systems. Computer Associates offers this security option for Unicenter TNG.

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### Patent watch

Recently issued U.S. patents (number, inventor/assignee, date)

Technique for protecting multiplayer online computer games from being disrupted by call-waiting signals. (5,651,060, Catapult Entertainment, Cupertino, Calif., July 22)

Electronic gift-certificate dispenser. The customer inserts a credit card into a kiosk, selects from a menu of participating retailers and enters the certificate amount. After the credit-card transaction is approved, the machine prints the certificate. (5,652,421, The Gift Certificate Center, Minneapolis, July 29)

"Digital secretary" that screens callers. The telephone answering machine uses speech recognition to determine whether the caller is on a list of high-priority callers. If so, the call goes through or the caller gets a customized message. Otherwise, the caller gets a standard recorded message. (5,651,055, Lucent Technologies, Murray Hill, N.J., July 22)

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## Cyberstationery

Tired of boring E-mail? Send professional note cards, called CyberStationery. Visit the Web site at www.iprint.com and select a preformatted announcement, thank-you note or invitation. Add your text and send it as E-mail. The service is free.

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## Doubleheader

Stock traders always seem to have desks crammed with multiple monitors and 14 telephones — and still they yearn for more data. So STB Systems in Richardson, Texas, offers the Galileo dual flat-panel display system to replace those bulky CRTs and your precious desk space. The adjustable monitors feature the Symmetry dual digital video card, which can drive twin displays from one PC.

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## t.cw

Timing is everything, and SAP AG and Intel didn't lose it last week. The two companies had the unfortunate problem of picking state-plagued United Parcel Service as the delivery and package-tracking supplier for a new electronic-commerce company SAP and Intel had formed. During a fictional demo of the new product, SAP and Intel officials had to use UPS to deliver camping gear for the fictional scenario. An SAP executive uttered and half-jokingly said, "Let's hope it gets there." It's a lot easier to send your news tips to news editor Patricia Keefe. She can be reached at (508) 820-8183 or patricia_keefe@cw.com.

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**The Back Page**

Dispatches from the fringes of the electronic frontier

## InsideLines



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*Source: MicroPatent (www.micropat.com)*

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TO VISIT A FURNITURE SHOWROOM

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